CCD-TR401E/TR402E

RMT-713

SERVICE MANUAL

AEP Model
East European Model
North European Model
Russian Model
CCD-TR401E/TR402E
UK Model
CCD-TR401E

Video8
Handycam

B MECHANISM

SONY
SONY
SONY
26x
Handycam Video8
Video8

PHOTO : CCD-TR402E

Differences Manual

- This service manual descrives the difference between CCD-TR401E and CCD-TR340E.
- This service manual descrives the difference between CCD-TR402E and CCD-TR520E.
- This service manual descrives the difference between CCD-TR401E/TR402E and CCD-TR424E.
  When repairing CCD-TR401E/TR402E, refer to the CCD-TR340E/TR520E SERVICE MANUAL (9-973-861-11) or CCD-TR420/TR420E/TR424E SERVICE MANUAL (9-973-898-11).
- The main differences are that the suffix numbers of the VC-167P board and the DD-80P board are changed, and refer to the following " Table for difference of functions ".

• Board suffix numbers difference table

BOARD	CCD-TR340E/TR520E and TR424E MODEL	CCD-TR401E/TR420E MODEL
VC-167P	1-657-858-22	1-657-858-52 or 62
DD-80P	1-657-859-22	1-657-859-52 or 62

• Table for difference of functions

Model	TR340E	TR520E	TR424E	TR401E	TR402E
Destination	AEP	AEP/UK	RU	AEP/EE/NE/RU/UK	AEP/EE/NE/RU
Digital zoom	×	○ (24×)	○ (24×)	×	○ (26×)
Steady shot	×	○	×	×	×
Wide mode	×	○	○	×	○
LCD	×	○	×	○ (*)	○ (*)

Abbreviations
EE : East European model
NE : North European model
RU : Russian model

(*) Note :
The LCD used in the CCD-TR401E/TR402E is different from the LCD used in the TR520E.

8 VIDEO CAMERA RECORDER

MICROFILM

SONY®

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SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

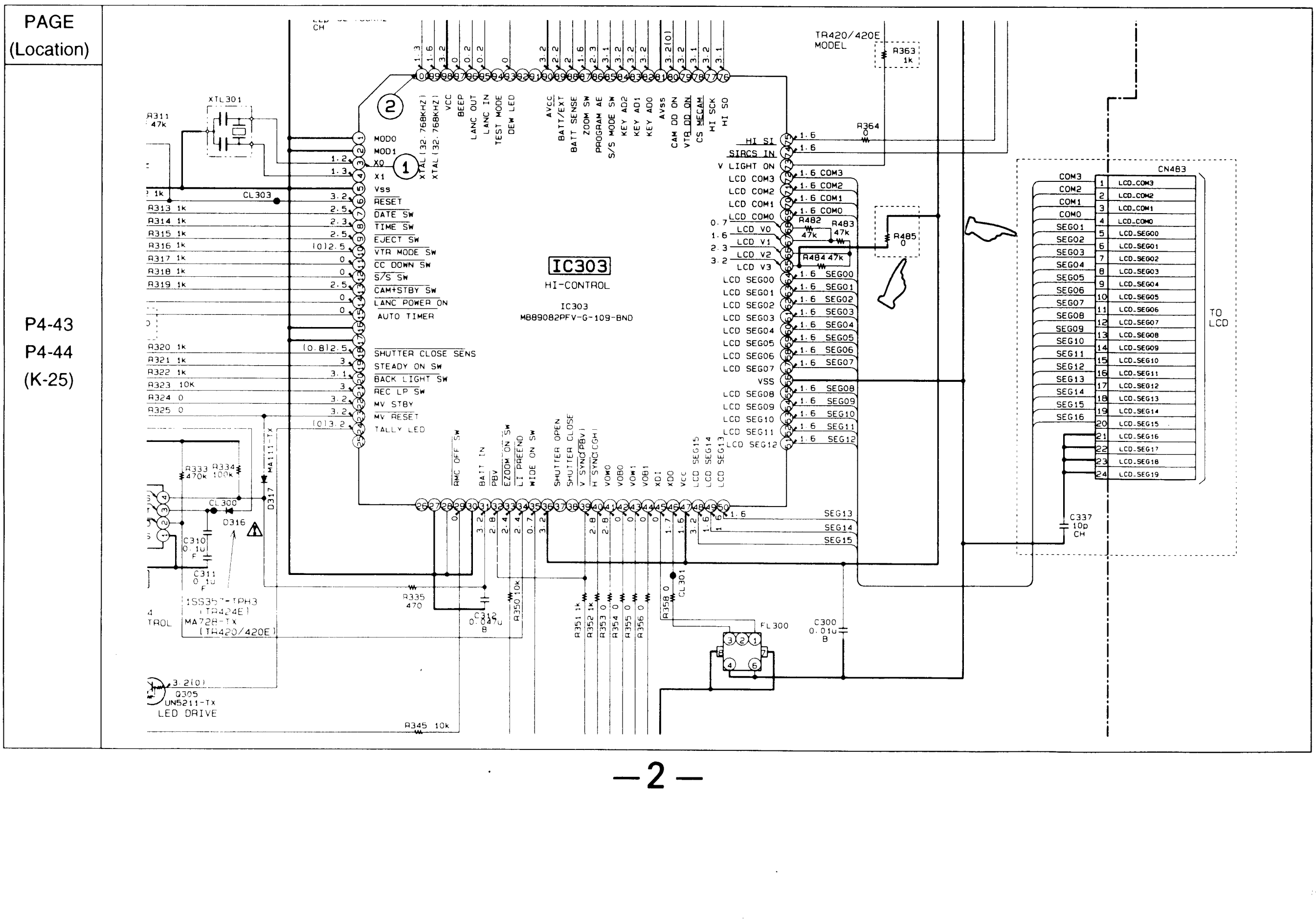
SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, par-ticularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replace-ment.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

SCHEMATIC DIAGRAM

- **CF-43 BOARD Schematic diagram different points of TR401E/TR402E MODEL showing differences from the CF-43 BOARD of TR424E MODEL** ☞: Points added parts.


PAGE
(Location)
P4-43
P4-44
(K-25)
XTL301
R311 47k
CL303
R313 1k
R314 1k
R315 1k
R316 1k
R317 1k
R318 1k
R319 1k
R320 1k
R321 1k
R322 1k
R323 10K
R324 0
R325 0
R333 470k
R334 100k
CL300
D316
C310 0.1u
C311 0.1u
D317
MA111-TX
1SS357-TPH3 (TR424E)
MA728-TX (TR420/420E)
Q305 UN5211-TX LED DRIVE
R345 10k
R335 470
C316 0.047u
R350 10k
R351 1k
R352 1k
R353 0
R354 0
R355 0
R356 0
R358 0
CL301
FL300
C300 0.01u
MOD0
MOD1
XO
X1
VSS
RESET
DATE SW
TIME SW
EJECT SW
VTR MODE SW
CC DOWN SW
S/S SW
CAM+STBY SW
LANC POWER ON
AUTO TIMER
SHUTTER CLOSE SENS
STEADY ON SW
BACK LIGHT SW
REC LP SW
MV STBY
MV RESET
TALLY LED
XTAL (32.768KHZ)
VCC
BEEP
LANC OUT
LANC IN
TEST MODE
DEW LED
AVCC
BATT/EXT
BATT SENSE
ZOOM SW
PROGRAM AE
S/S MODE SW
KEY AD2
KEY AD1
KEY AD0
AVSS
CAM DD ON
VTR DD ON
CS MECAM
HI SCK
HI SO
HI SI
SIRCS IN
V LIGHT ON
LCD COM3
LCD COM2
LCD COM1
LCD COM0
LCD V0
LCD V1
LCD V2
LCD V3
LCD SEG00
LCD SEG01
LCD SEG02
LCD SEG03
LCD SEG04
LCD SEG05
LCD SEG06
LCD SEG07
LCD SEG08
LCD SEG09
LCD SEG10
LCD SEG11
LCD SEG12
LCD SEG13
LCD SEG14
LCD SEG15
RMC OFF SW
BATT IN
PBV
EZOOM ON SW
LI PREEND
WIDE ON SW
SHUTTER OPEN
SHUTTER CLOSE
V SYNC(PBV)
H SYNC(CGH)
VOB0
VOB1
VOM1
XOI
XDD
VCC
IC303
HI-CONTROL
IC303
M889082PFV-G-109-BND
R482 47k
R483 47k
R484 47k
R485 0
R364 0
R363 1K
TR420/420E MODEL
CN483
COM3
COM2
COM1
COM0
SEG01
SEG02
SEG03
SEG04
SEG05
SEG06
SEG07
SEG08
SEG09
SEG10
SEG11
SEG12
SEG13
SEG14
SEG15
SEG16
LCD.COM3
LCD.COM2
LCD.COM1
LCD.COM0
LCD.SEG00
LCD.SEG01
LCD.SEG02
LCD.SEG03
LCD.SEG04
LCD.SEG05
LCD.SEG06
LCD.SEG07
LCD.SEG08
LCD.SEG09
LCD.SEG10
LCD.SEG11
LCD.SEG12
LCD.SEG13
LCD.SEG14
LCD.SEG15
LCD.SEG16
LCD.SEG17
LCD.SEG18
LCD.SEG19
TO LCD
C337 10p CH
①
②

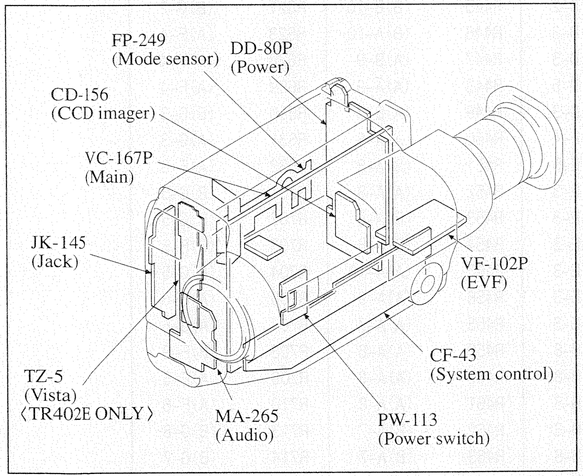
PRINTED WIRING BOARDS

DD-80P (POWER) PRINTED WIRING BOARD (TR401E/TR402E MODEL)

— Ref. No. : DD-80P Board; 1,000 Series —

DD-80P BOARD

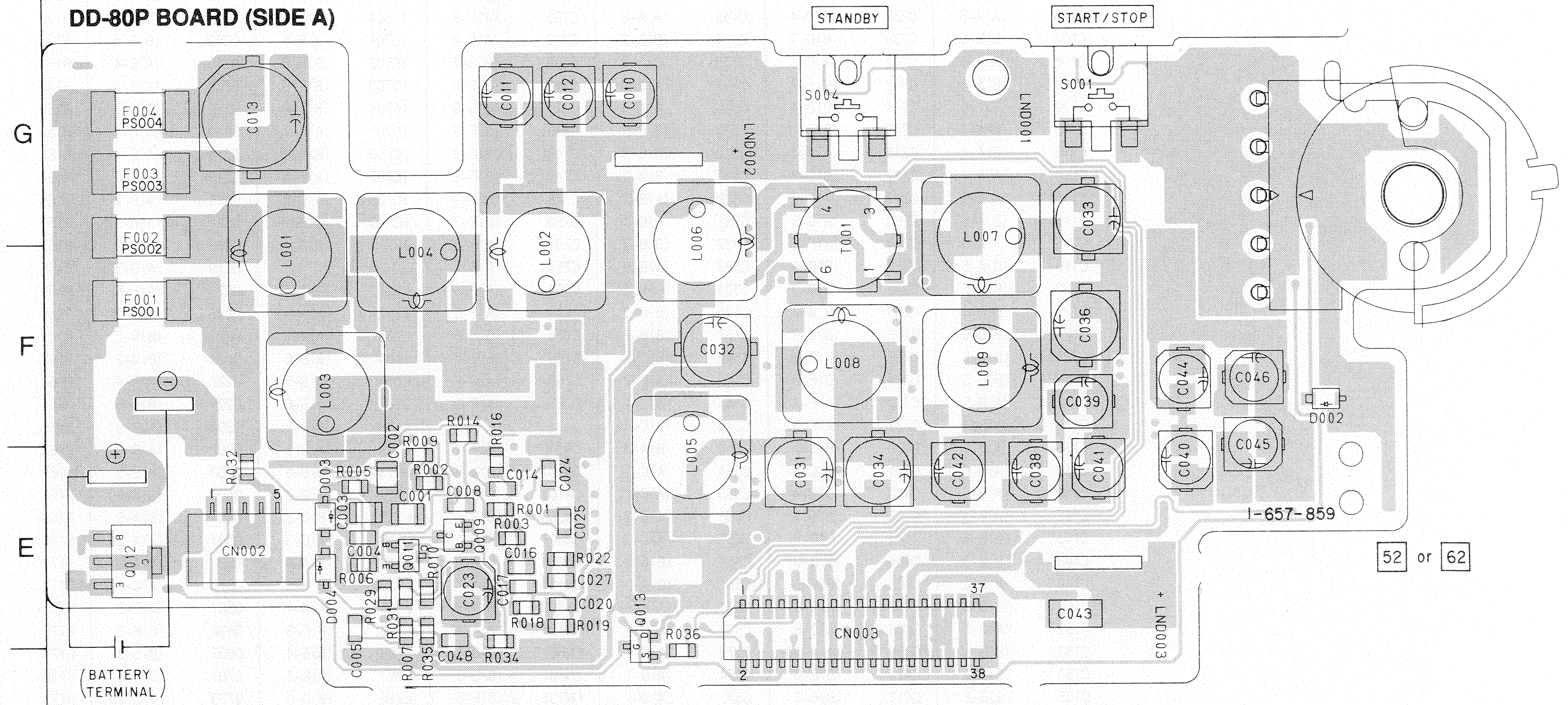
C001	E–2	C035	B–4	L008	F–4	R005	E–2
C002	E–2	C036	F–6	L009	F–5	R006	E–2
C003	E–2	C037	B–4	L010	C–5	R007	E–2
C004	E–2	C038	E–5	L011	C–5	R008	C–2
C005	E–2	C039	F–6	L012	C–6	R009	E–2
C006	B–2	C040	E–6	L013	C–6	R010	E–2
C007	C–2	C041	E–6	L014	C–4	R014	F–3
C008	E–3	C042	E–5	L015	B–4	R015	D–3
C009	C–3	C043	E–6	L016	C–5	R016	E–3
C010	G–3	C044	F–6	L017	B–6	R017	B–3
C011	G–3	C045	F–6	L018	B–6	R018	E–3
C012	G–3	C046	F–6			R019	E–3
C013	G–1	C047	B–3	PS002	G–1	R020	B–3
C014	E–3	C048	E–3	PS003	G–1	R021	B–3
C016	E–3			PS004	G–1	R022	E–3
C018	B–3	CN003	E–5			R023	C–7
C019	C–3			Q001	B–5	R024	C–4
C022	B–3	D001	B–4	Q002	A–5	R025	C–4
C024	E–3			Q003	A–4	R026	C–4
C025	E–3	IC001	C–3	Q004	B–4	R027	A–6
C026	B–3			Q005	B–4	R033	B–7
C027	E–3	J001	B–1	Q006	B–4		
C028	B–4			Q007	B–5	S001	G–6
C029	B–5	L002	G–3	Q008	C–4	S002	C–7
C030	A–4	L003	F–2			S003	B–7
C031	E–4	L004	F–2	R001	E–3	S004	G–4
C032	F–4	L005	F–4	R002	E–2		
C033	G–6	L006	G–4	R003	E–3	T001	G–4
C034	E–5	L007	G–5	R004	B–2		


FP-249
(Mode sensor)
DD-80P
(Power)
CD-156
(CCD imager)
VC-167P
(Main)
JK-145
(Jack)
VF-102P
(EVF)
CF-43
(System control)
TZ-5
(Vista)
〈TR402E ONLY〉
MA-265
(Audio)
PW-113
(Power switch)

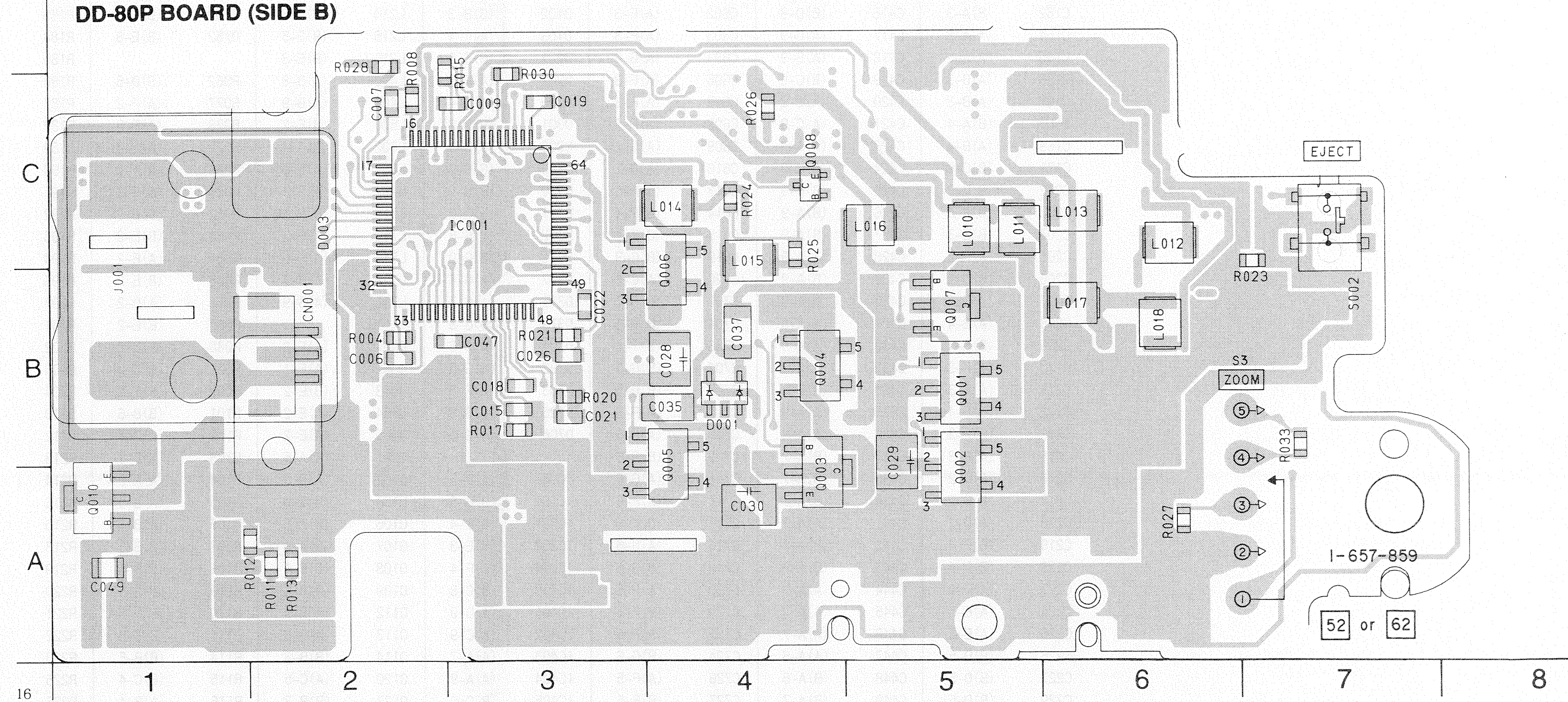
• The schematic diagram is omitted because there is no change in schematic diagram.

There are few cases that the part printed on this diagram isn't mounted in this model.

DD-80P BOARD (SIDE A)


STANDBY
START/STOP
G
F
E
F004
PS004
F003
PS003
F002
PS002
F001
PS001
C013
C011
C012
C010
S004
LND002
LND001
S001
L001
L004
L002
L006
T001
L007
C033
C036
C032
L008
L009
L003
C039
C044
C046
D002
L005
C031
C034
C042
C038
C041
C040
C045
R014
R016
R032
C002
R009
R005
R002
C014
C024
Q003
C003
C001
C008
R001
R003
C025
CN002
Q012
C004
Q011
R006
C016
R022
C027
C020
R019
R018
C023
C017
R029
D004
C005
R007
R035
C048
R034
Q013
R036
CN003
37
1
2
38
C043
LND003
1-657-859
52 or 62
BATTERY
TERMINAL

DD-80P BOARD (SIDE B)


D
C
B
A
R028
C007
R008
R015
R030
C009
C019
R026
16
17
64
IC001
Q008
L014
R024
L016
L010
L011
L013
L012
EJECT
S002
R023
D003
J001
CN001
Q006
L015
R025
32
49
33
48
C022
Q007
L017
L018
R004
C047
R021
C026
C006
C037
C028
Q004
Q001
C018
R020
C035
D001
C015
C021
R017
Q005
Q003
C029
Q002
C030
S3
ZOOM
R033
R027
Q010
C049
R012
R011
R013
1-657-859
52 or 62
1
2
3
4
5
6
7
8

VC-167P BOARD

C076	(B)E-2
C077	(B)E-2
C078	(B)E-2
C101	(B)A-4
C102	(B)A-5
C106	(A)A-6
C107	(B)B-6
C108	(B)A-6
C109	(B)A-6
C110	(B)A-6
C112	(A)A-4
C113	(B)A-4
C114	(A)A-4
C115	(A)A-5
C116	(B)A-5
C118	(A)A-5
C119	(B)A-5
C122	(B)B-5
C123	(B)B-5
C127	(B)B-5
C128	(B)B-5
C129	(B)B-5
C130	(A)B-5
C137	(A)B-4
C138	(A)B-5
C140	(A)B-6
C141	(A)B-5
C142	(A)B-5
C143	(A)B-6
C148	(B)B-3
C149	(B)B-3
C150	(B)B-3
C152	(A)B-3
C153	(B)B-4
C154	(B)B-3
C155	(B)B-3
C156	(B)B-4
C157	(B)C-3
C160	(B)B-5
C162	(B)A-3
C164	(A)A-3
C165	(A)A-3
C166	(A)B-3
C167	(A)B-3
C168	(B)A-4
C169	(A)B-4
C171	(B)C-6
C202	(B)E-3
C203	(B)F-3
C204	(B)E-3
C205	(B)F-3
C206	(B)F-3
C207	(A)E-4
C208	(A)E-4
C209	(B)F-4
C210	(A)F-3
C211	(A)F-3
C212	(B)F-4
C213	(B)F-3
C215	(A)E-3
C216	(B)G-2
C217	(B)G-2
C218	(A)D-3
C219	(B)F-4
C221	(B)D-4
C223	(A)D-4
C224	(A)E-5
C225	(A)E-5
C226	(B)D-5
C227	(B)D-5
C229	(B)D-5
C230	(B)D-5
C233	(A)D-2
C234	(A)D-4
C235	(A)D-4
C236	(A)D-4
C237	(B)D-4
C238	(B)D-3
C242	(A)C-5
C243	(B)F-3
C244	(B)D-4
C245	(B)E-4
C246	(A)D-4
C247	(B)D-2
C248	(A)C-2
C252	(B)D-5
C254	(A)F-5
C260	(B)D-6
C263	(B)D-2
C265	(B)D-3
C266	(B)D-3
C267	(B)E-5
C269	(B)E-3
C270	(A)E-3
C271	(A)E-3
C400	(B)C-8
C401	(B)C-8
C402	(B)B-9
C403	(B)C-8
C404	(B)D-8
C405	(A)C-9
C406	(B)C-9
C407	(A)D-8
C408	(A)D-8
C409	(A)A-10
C411	(B)B-9
C412	(B)B-9
C413	(A)A-9
C414	(A)A-8
C415	(A)A-7
C416	(B)D-9
C417	(A)C-9
C418	(A)B-9
C419	(B)C-9
C420	(A)C-9
C421	(A)C-9
C423	(A)A-7
C424	(A)C-9
C425	(B)B-9
C426	(B)A-9
C427	(B)A-9
C428	(A)A-9
C429	(B)A-9
C430	(B)A-9
C431	(A)A-8
C432	(A)A-9
C433	(A)A-9
C434	(B)B-8
C435	(A)A-9
C436	(A)A-8
C437	(B)A-7
C438	(B)A-7
C439	(B)A-7
C441	(A)A-7
C442	(B)A-10
C443	(B)A-9
C444	(A)A-7
C445	(A)A-7
C446	(A)A-7
C447	(A)A-6
C448	(B)A-6
C449	(B)A-7
C450	(A)A-6
C451	(B)A-6
C452	(A)A-6
C453	(A)A-6
C456	(A)B-9
C458	(A)A-6
C504	(B)B-2
C505	(B)A-2
C513	(A)A-3
C515	(A)A-3
C520	(B)C-2
C522	(B)B-3
C523	(B)B-2
C529	(A)B-2
C531	(A)C-1
C532	(B)B-3
C533	(A)B-3
C534	(B)B-3
C535	(B)B-2
C537	(B)B-2
C540	(B)C-2
C543	(A)C-2
C546	(B)C-1
C548	(B)C-2
C550	(B)A-2
C554	(A)C-1
C555	(A)C-2
C556	(A)C-2
C557	(A)C-3
C558	(B)C-2
C561	(B)A-2
C571	(A)D-1
C572	(A)D-1
C573	(A)E-1
C574	(A)D-1
C575	(A)D-1
C576	(A)D-1
C577	(A)D-1
C578	(B)D-1
C602	(A)F-3
C603	(A)F-3
C604	(A)G-2
C606	(A)F-3
C607	(A)F-3
C608	(A)F-3
C609	(A)G-2
C610	(A)G-2
C613	(B)F-5
C614	(B)F-4
C615	(B)F-4
C619	(B)G-3
C620	(A)G-2
C701	(B)G-5
C704	(B)F-5
C706	(B)F-5
C707	(B)G-5
C708	(B)G-5
C710	(A)F-5
C711	(A)G-6
C712	(B)G-6
C713	(A)G-6
C714	(A)F-6
C715	(B)F-6
C717	(A)G-6
C718	(B)G-6
C719	(A)E-6
C720	(B)F-5
C722	(A)F-6
C724	(B)G-6
C726	(A)F-5
C727	(B)F-5
C728	(B)E-5
C729	(B)E-5
C731	(A)F-6
C732	(B)E-6
C734	(B)G-6
C735	(A)G-8
C736	(A)G-8
C739	(B)G-7
C740	(B)G-8
C741	(B)G-9
C742	(B)G-9
C745	(B)E-8
C746	(B)F-9
C748	(B)F-9
C750	(A)F-7
C751	(A)F-6
C754	(A)E-7
C755	(A)F-6
C757	(A)F-6
C758	(B)E-6
C759	(B)E-7
C760	(A)G-8
C761	(A)F-9
CN060	(B)F-1
CN101	(B)A-5
CN102	(A)B-1
CN300	(B)B-8
CN301	(A)E-10
CN400	(B)A-6
CN401	(B)A-7
CN402	(B)A-9
CN403	(B)A-3
CN501	(B)B-1
CN601	(B)G-3
CN701	(B)F-5
CN702	(A)F-9
D101	(B)B-4
D102	(B)B-3
D103	(A)C-4
D201	(B)E-5
D202	(A)F-3
D203	(A)C-4
D301	(B)B-9
D302	(B)B-8
D309	(B)G-4
D310	(B)G-5
D311	(B)G-6
D312	(B)G-8
D313	(B)G-9
D317	(A)G-6
D318	(A)G-7
D319	(B)G-8
D701	(A)G-6
D702	(A)G-5
D703	(A)F-5
D705	(B)G-8
D706	(B)G-6
IC061	(A)D-6
IC101	(B)B-5
IC201	(B)E-4
IC202	(B)E-3
IC204	(A)F-4
IC400	(B)C-8
IC401	(A)D-9
IC402	(A)C-9
IC403	(A)A-7
IC404	(A)A-9
IC405	(B)C-9
IC501	(A)B-2
IC570	(B)D-2
IC601	(A)G-3
IC602	(A)F-2
IC603	(B)G-4
IC604	(A)G-4
IC701	(A)F-5
IC702	(B)F-6
IC703	(B)E-6
IC704	(B)F-6
IC705	(A)F-7
IC706	(B)F-8
IC707	(A)F-8
IC708	(A)G-5
IC709	(B)G-9
IC710	(B)G-7
L101	(A)A-4
L102	(A)A-5
L103	(A)B-6
L104	(B)B-6
L106	(A)B-5
L107	(A)B-6
L108	(A)B-5
L109	(A)B-5
L113	(B)B-5
L114	(B)B-3
L115	(B)B-3
L118	(A)C-3
L119	(A)A-4
L120	(B)B-4
L121	(A)B-4
L202	(B)F-3
L203	(B)E-4
L207	(A)E-5
L210	(B)D-3
L211	(B)D-4
L212	(A)C-5
L213	(B)F-3
L214	(B)D-6
L215	(B)E-5
L216	(B)E-3
L400	(A)D-8
L401	(A)B-9
L570	(B)E-2
L602	(B)G-4
L704	(A)F-5
L707	(A)G-7
L710	(B)F-10
L712	(A)F-7
L714	(A)F-6
L715	(A)F-7
L716	(A)G-9
Q061	(A)F-2
Q062	(A)F-1
Q063	(B)E-2
Q064	(A)E-2
Q065	(A)E-2
Q101	(A)A-5
Q102	(A)B-5
Q104	(B)B-6
Q106	(B)A-6
Q107	(B)A-6
Q108	(B)B-4
Q109	(B)B-4
Q112	(A)B-5
Q113	(A)B-5
Q114	(B)B-6
Q120	(A)C-5
Q123	(B)B-3
Q124	(A)B-3
Q125	(A)B-3
Q126	(A)C-3
Q129	(B)A-3
Q130	(B)A-3
Q131	(B)B-3
Q202	(B)F-4
Q206	(A)E-4
Q208	(A)D-2
Q212	(A)C-3
Q213	(A)C-4
Q214	(A)C-4
Q215	(B)E-5
Q216	(A)D-2
Q217	(A)D-2
Q218	(B)D-2
Q219	(A)C-3
Q221	(A)F-5
Q222	(A)D-2
Q223	(B)D-2
Q224	(B)D-2
Q226	(A)F-4
Q227	(B)D-5
Q301	(A)B-9
Q302	(A)B-9
Q303	(A)E-9
Q400	(B)A-9
Q401	(B)A-9
Q501	(B)A-2
Q507	(B)A-2
Q570	(A)C-1
Q601	(A)F-3
Q602	(B)F-2
Q603	(B)G-3
Q701	(B)G-5
Q703	(B)G-10
Q704	(B)G-10
Q705	(B)G-9
Q706	(B)G-9
Q750	(B)E-9
Q752	(B)E-8
R062	(B)D-6
R077	(A)F-2
R078	(A)F-2
R079	(A)F-2
R080	(A)F-2
R081	(B)E-2
R082	(B)E-2
R083	(B)E-2
R084	(A)E-2
R085	(B)E-2
R086	(A)D-2
R087	(B)E-2
R088	(B)E-2
R091	(B)E-2
R092	(B)E-2
R101	(B)B-6
R102	(A)B-4
R103	(A)B-5
R104	(A)A-5
R105	(A)B-5
R106	(A)B-5
R107	(B)B-5
R108	(B)B-5
R109	(B)B-5
R110	(B)B-6
R111	(B)B-5
R114	(B)B-5
R115	(B)C-4
R116	(A)B-4
R117	(B)B-4
R127	(A)B-5
R128	(A)B-5
R129	(A)B-5
R132	(A)B-6
R133	(A)B-6
R134	(A)B-5
R141	(B)B-4
R149	(B)C-4
R150	(B)B-3
R152	(B)B-4
R153	(A)B-3
R154	(A)B-3
R155	(A)B-3
R156	(B)B-3
R157	(B)B-3
R158	(B)B-3
R159	(B)B-3
R160	(A)B-4
R161	(A)B-4
R162	(A)B-4
R163	(A)B-4
R164	(A)B-4
R165	(B)B-4
R166	(A)B-4
R167	(A)B-4
R168	(A)B-4
R169	(A)B-3
R170	(A)A-5
R171	(A)A-5
R172	(B)A-5
R173	(B)A-5
R176	(B)C-3
R177	(A)C-3
R178	(B)A-3
R179	(B)A-3
R180	(A)A-3
R181	(A)A-3
R182	(A)A-4
R183	(A)A-3
R184	(A)B-4
R185	(B)A-3
R186	(B)A-3
R187	(B)A-3
R188	(B)B-6
R189	(B)B-6
R190	(B)A-6
R191	(B)B-6
R192	(B)A-6
R193	(B)A-6
R194	(A)A-6
R196	(B)A-6
R197	(B)B-3
R201	(B)F-3
R202	(B)F-3
R203	(B)F-3
R204	(A)E-4
R210	(A)E-5
R212	(B)F-4
R213	(B)F-4
R214	(B)G-1
R215	(B)G-1
R216	(B)G-2
R218	(A)E-3
R219	(B)D-4
R220	(B)D-4
R221	(A)D-3
R222	(B)E-4
R223	(A)F-4
R225	(B)D-2
R226	(B)D-5
R228	(A)F-5
R229	(A)D-4
R230	(B)D-4
R232	(A)E-5
R234	(B)E-4
R235	(B)D-4
R239	(A)E-4
R241	(B)E-4
R243	(B)D-3
R244	(A)D-3
R247	(A)D-3
R248	(A)D-4
R249	(B)D-3
R254	(A)C-4
R255	(A)C-4
R256	(B)D-2
R257	(B)D-2
R259	(A)D-3
R260	(A)D-4
R261	(A)D-2
R262	(A)C-2
R265	(B)D-2
R266	(A)E-3
R267	(B)D-4
R268	(B)D-2
R270	(B)D-2
R271	(A)D-2
R272	(B)D-2
R273	(A)C-3
R274	(A)C-3
R276	(A)C-3
R277	(A)C-3
R279	(B)C-3
R281	(B)D-3
R283	(B)D-3
R284	(B)D-2
R286	(B)D-2
R287	(B)D-3
R289	(B)D-3
R290	(A)D-5
R291	(A)D-3
R292	(B)F-4
R293	(B)E-5
R294	(B)E-3
R295	(B)E-3
R296	(B)E-3
R297	(A)E-3
R298	(A)E-3
R299	(A)E-3
R301	(A)B-8
R302	(A)B-8
R303	(A)B-8
R304	(B)B-8
R305	(A)B-8
R307	(B)B-8
R308	(A)B-9
R309	(A)A-10
R310	(B)G-5
R311	(B)G-9
R312	(B)G-7
R313	(B)G-6
R314	(A)G-6
R315	(A)G-2
R316	(A)G-5
R317	(A)G-7
R318	(A)G-8
R319	(B)B-9
R320	(B)B-9
R321	(A)B-9
R327	(A)B-8
R328	(A)B-8
R329	(A)B-8
R330	(A)B-9
R331	(A)B-8
R333	(B)D-9
R334	(B)G-8
R400	(B)B-7
R401	(B)B-7
R402	(B)B-7
R403	(B)C-7
R404	(B)C-7
R405	(B)C-7
R406	(B)C-7
R407	(B)C-7
R411	(A)D-10
R417	(B)C-8
R418	(A)D-8
R419	(B)C-7
R420	(A)D-8
R421	(A)D-8
R422	(A)D-8
R423	(B)D-9
R425	(A)D-8
R426	(A)D-8
R427	(B)C-9
R428	(B)C-9
R429	(B)A-9
R430	(B)B-8
R434	(A)B-9
R436	(B)D-9
R437	(A)B-9
R438	(A)B-9
R439	(A)C-9
R440	(A)C-9
R441	(A)C-9
R442	(A)C-9
R444	(B)A-10
R445	(B)B-10
R446	(B)A-10
R447	(A)B-9
R448	(A)A-9
R449	(A)B-8
R450	(A)A-8
R451	(B)A-8
R452	(A)A-8
R453	(B)A-8
R454	(B)A-8
R455	(A)A-10
R456	(A)A-9
R458	(A)A-7
R459	(A)A-8
R460	(A)A-8
R461	(A)A-8
R462	(B)A-7
R463	(B)A-7
R464	(B)A-7
R465	(B)A-6
R466	(B)C-9
R467	(B)A-9
R468	(A)A-9
R469	(A)A-9
R471	(A)D-8
R472	(A)D-8
R473	(A)D-8
R474	(A)D-7
R475	(A)D-7
R476	(B)C-7
R477	(B)C-7
R478	(B)C-7
R479	(A)B-7
R481	(B)A-9
R482	(B)A-9
R501	(A)A-3
R503	(A)C-6
R506	(A)C-6
R514	(B)C-2
R515	(A)C-2
R517	(B)C-2
R520	(A)C-2
R522	(B)A-2
R525	(A)C-1
R530	(B)A-2
R531	(B)A-1
R534	(B)B-2
R537	(A)B-2
R556	(B)A-1
R570	(B)C-1
R571	(A)D-2
R575	(A)D-1
R581	(B)D-1
R601	(A)F-3
R603	(A)F-3
R604	(A)F-3
R605	(A)G-3
R606	(B)F-3
R607	(A)G-2
R608	(A)G-2
R609	(A)G-2
R610	(A)G-2
R611	(B)F-2
R612	(A)F-3
R613	(A)F-3
R614	(A)F-3
R615	(B)F-3
R616	(A)F-3
R618	(B)F-2
R619	(B)G-2
R620	(B)G-2
R621	(B)G-2
R623	(A)F-4
R628	(A)F-4
R629	(A)F-4
R630	(B)G-3
R631	(A)G-3
R632	(A)F-3
R701	(B)G-5
R702	(B)G-5
R703	(B)F-5
R704	(B)G-5
R706	(A)G-6
R707	(A)G-6
R708	(B)F-9
R709	(A)F-6
R710	(A)F-6
R713	(B)G-8
R714	(B)G-7
R715	(B)G-9
R717	(B)G-9
R719	(B)E-8
R720	(B)E-8
R721	(B)E-8
R722	(B)F-9
R723	(B)F-9
R724	(B)E-9
R725	(B)E-6
R726	(B)G-7
R727	(B)G-7
R728	(B)G-7
R729	(B)G-6
R730	(B)F-7
R732	(A)F-6
R733	(A)F-6
R734	(A)F-6
R735	(A)F-6
R740	(A)G-5
R741	(A)G-5
R742	(A)G-5
R743	(A)G-5
R744	(A)G-5
R745	(A)G-5
R751	(A)E-9
R756	(B)E-8
R757	(A)E-8
R758	(B)G-9
R759	(B)G-9
R775	(A)E-8
S301	(A)G-1
S302	(A)G-3
S303	(A)G-6
S304	(A)G-9
S305	(A)G-5
S306	(A)G-8
S307	(A)G-4
X400	(A)C-8
X701	(B)G-6
X702	(B)G-8

LOCATION
VC-167P

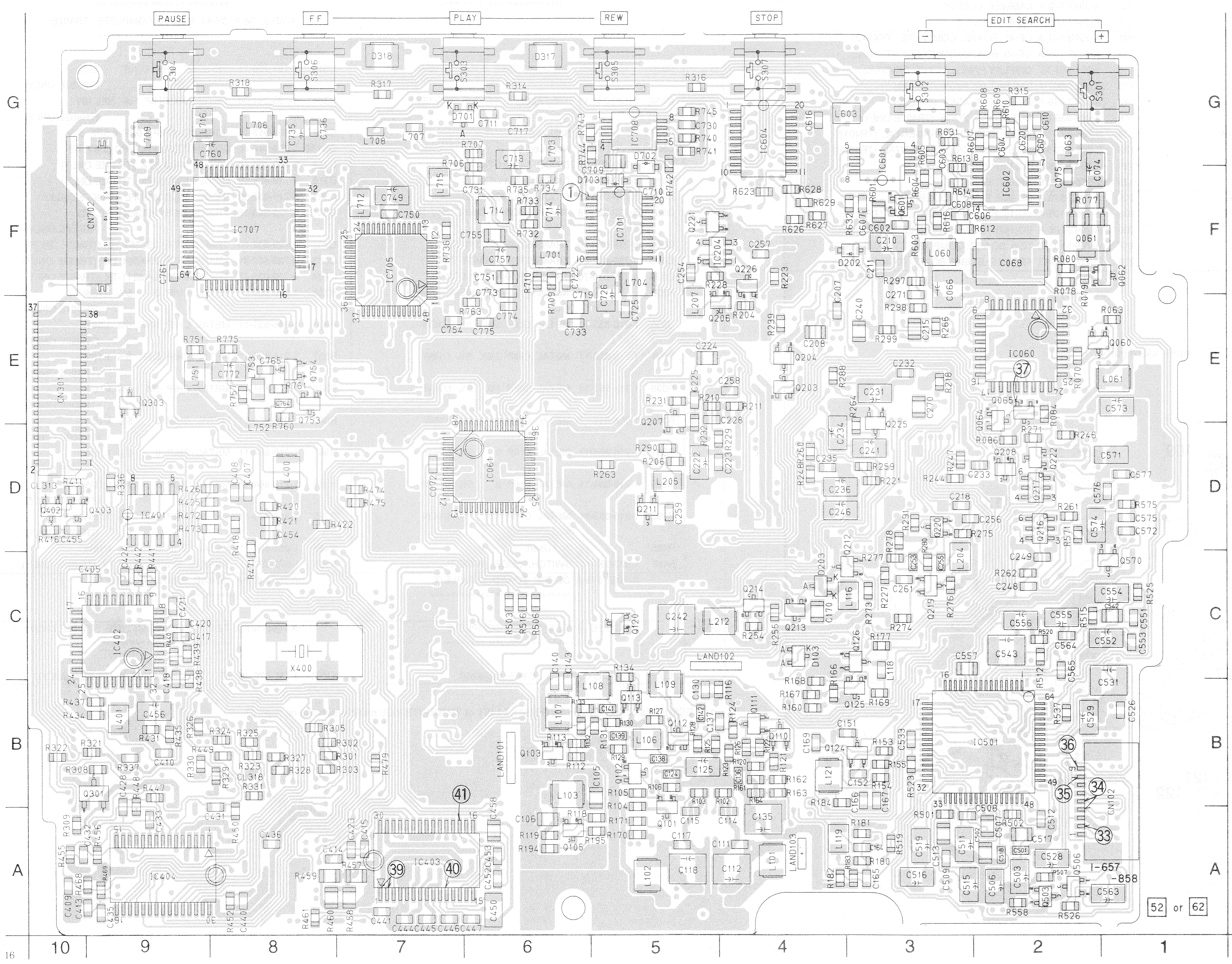
- The schematic diagram is omitted because there is no significant changes in shematic diagram.
- Values of some parts are changed. Refer to ELECTRICAL PARTS LIST.
- The inductor coils (L61, 62, 63, 105, 116, 601, 603, 701, 703, 706, 708, 709, 751) are not used. The printed circuit patterns are shorted. (These coils are shown as shorted in the schematic diagram too.)

There are few cases that the

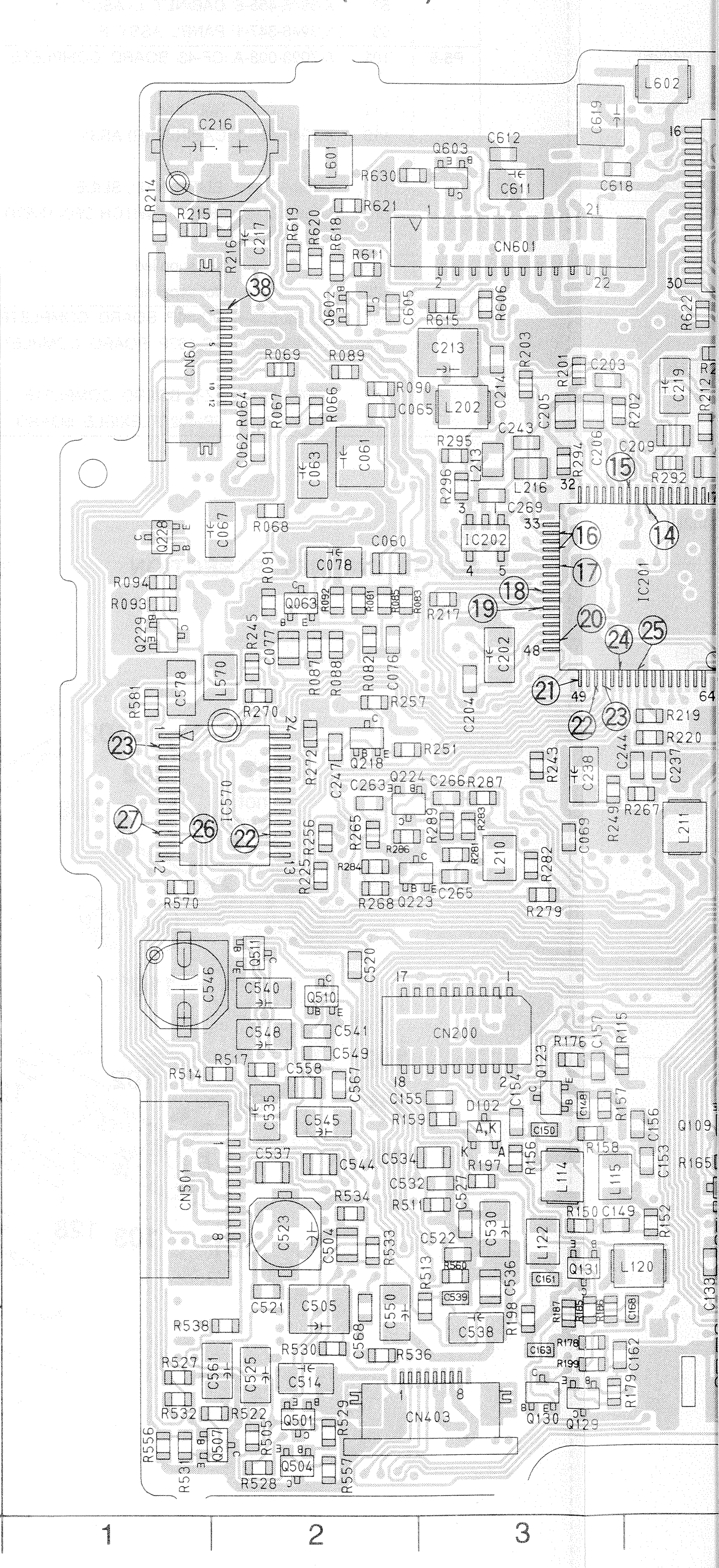
VC-167P (MAIN) PRINTED WIRING BOARD (TR401E/TR402E MODEL)

— Ref. No. : VC-167P Board; 1,000 Series —

VC-167P BOARD (SIDE A)

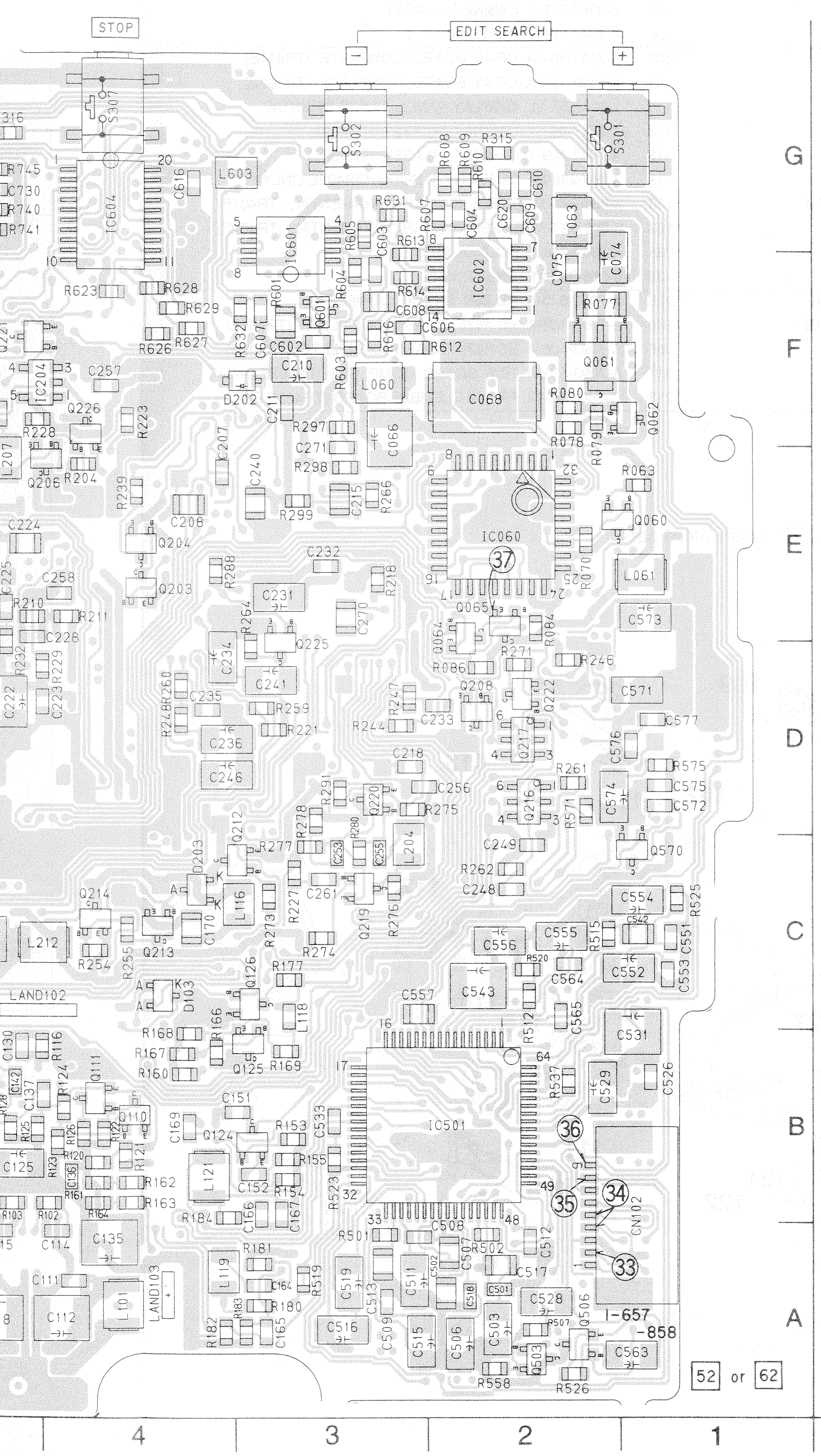

PAUSE
FF
PLAY
REW
STOP
EDIT SEARCH
−
+
S302
S306
S303
S305
S307
S301
IC707
IC705
IC701
IC708
IC604
IC601
IC602
IC060
IC061
IC401
IC402
IC404
IC403
IC501
CN702
CN301
CN102
X400
LAND101
LAND102
LAND103
G
F
E
D
C
B
A
10
9
8
7
6
5
4
3
2
1
1-657
-858
52
or
62

VC-167P BOARD (SIDE B)

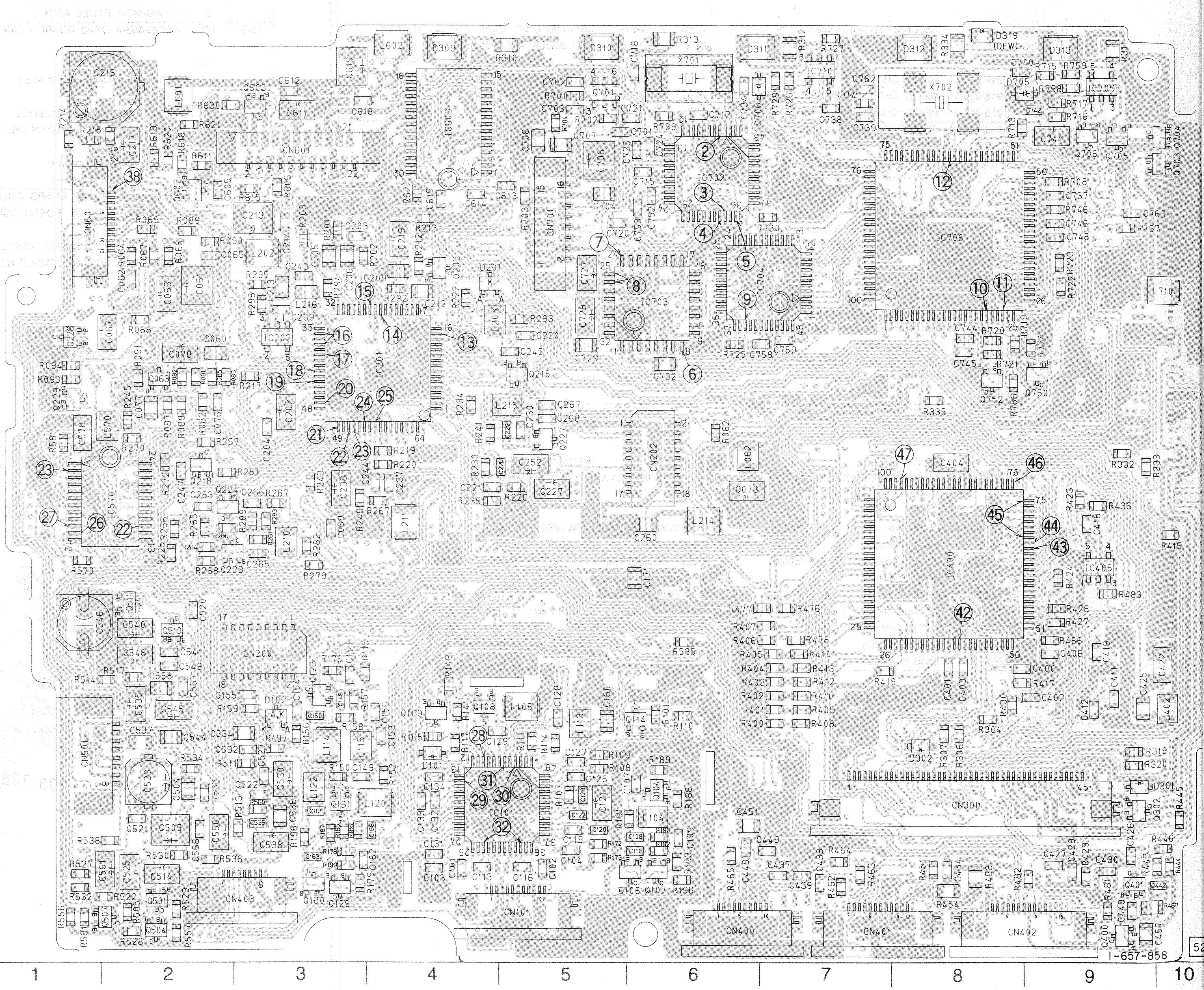

CN601
CN60
CN501
CN200
CN403
IC201
IC570
G
F
E
D
C
B
A
1
2
3

schematic diagram is omitted because there is no significant changes in shematic diagram.
es of some parts are changed. Refer to ELECTRICAL PARTS LIST.
nductor coils (L61, 62, 63, 105, 116, 601, 603, 701, 703, 706, 708, 709, 751) are not used. The printed circuit patterns are shorted.
se coils are shown as shorted in the schematic diagram too.)

There are few cases that the part printed on this diagram isn't mounted in this model.

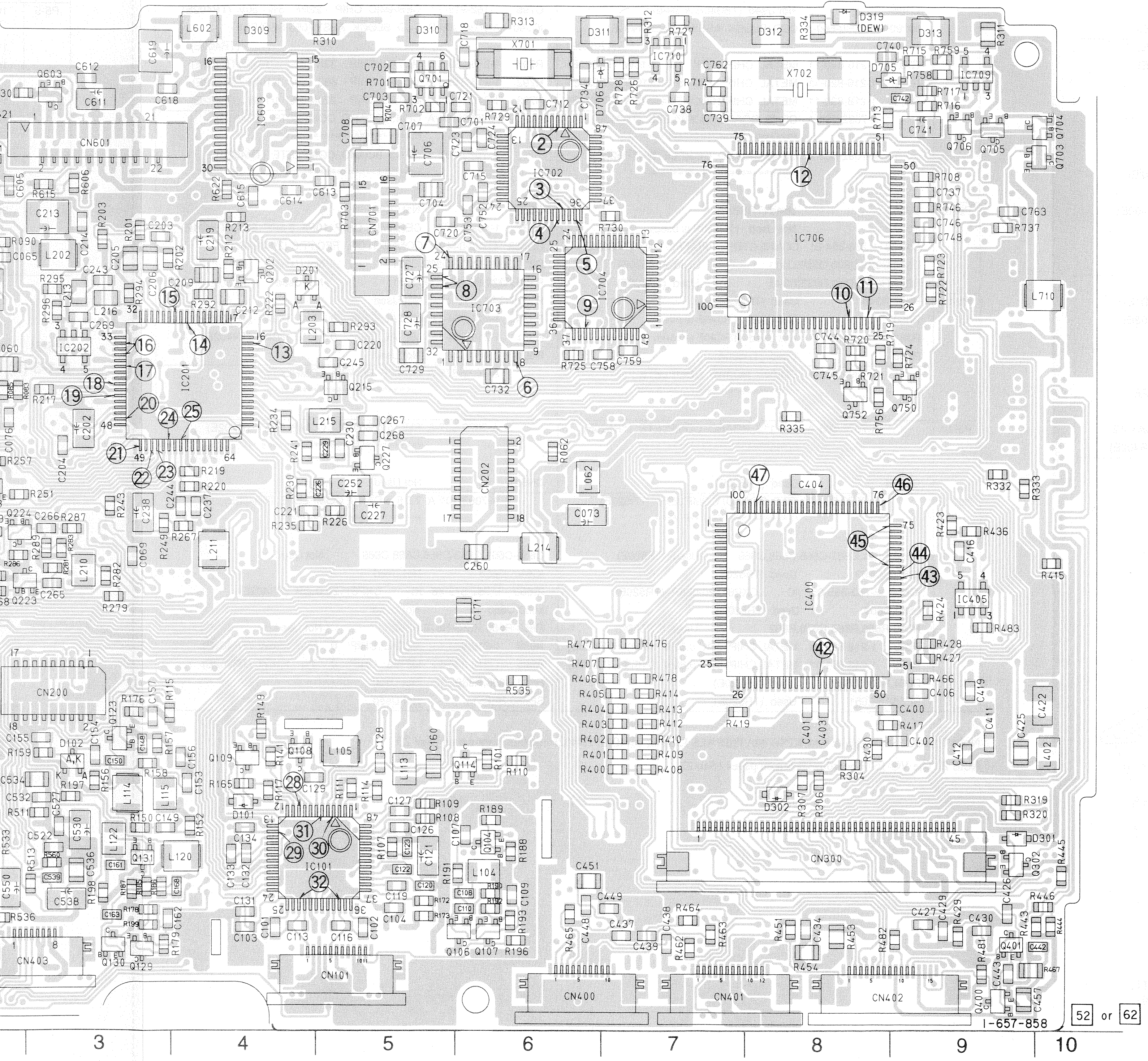

STOP
EDIT SEARCH
IC604
IC601
IC602
IC060
IC501
CN102
LAND102
LAND103
1-657
-858
52 or 62
G
F
E
D
C
B
A
4
3
2
1

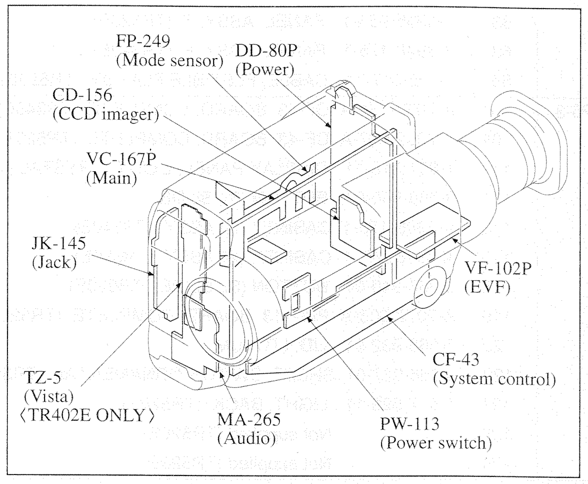
VC-167P BOARD (SIDE B)


CN601
IC603
CN701
IC702
IC703
IC704
IC706
IC201
IC202
IC570
CN60
CN200
CN202
IC400
IC405
IC101
CN501
CN403
CN101
CN400
CN401
CN402
CN300
X701
X702
1-657-858
1
2
3
4
5
6
7
8
9
10

There are few cases that the part printed on this diagram isn't mounted in this model.

DE B)


IC603
IC702
IC703
IC704
IC706
IC201
IC202
IC400
IC405
IC101
IC709
IC710
CN601
CN701
CN202
CN200
CN300
CN101
CN400
CN401
CN402
CN403
X701
X702
D309
D310
D311
D312
D313
D319 (DEW)
L602
L710
L214
L215
L105
L104
L120
L113
L114
L115
L122
L210
L211
L202
L203
L216
L402
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳ ㉑ ㉒ ㉓ ㉔ ㉕ ㉘ ㉙ ㉚ ㉛ ㉜ ㊷ ㊸ ㊹ ㊺ ㊻ ㊼
1-657-858
52 or 62
3
4
5
6
7
8
9
10


FP-249
(Mode sensor)
DD-80P
(Power)
CD-156
(CCD imager)
VC-167P
(Main)
JK-145
(Jack)
VF-102P
(EVF)
CF-43
(System control)
TZ-5
(Vista)
〈TR402E ONLY〉
MA-265
(Audio)
PW-113
(Power switch)

Different from TR340E/TR520E model

⟨EXPLODED VIEWS⟩

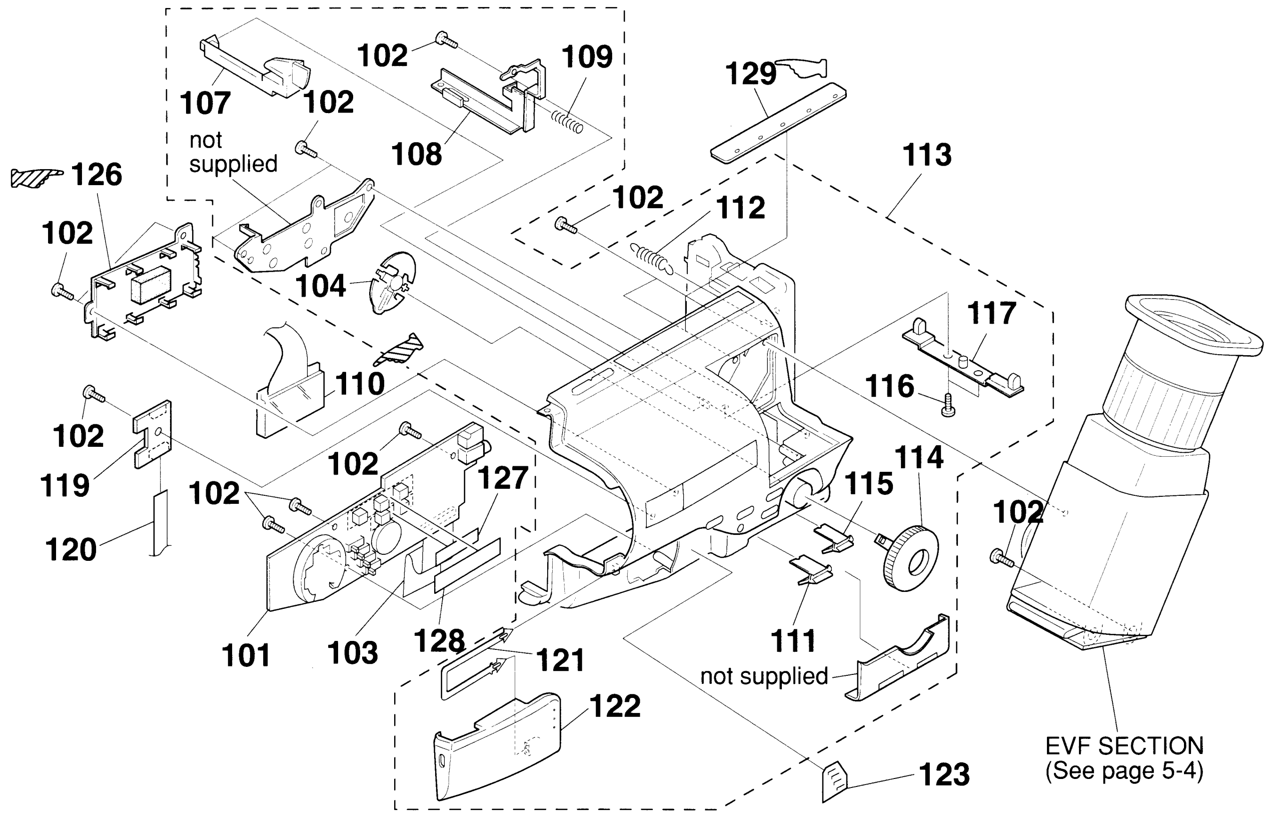
- **The repair parts lists of TR401E/TR402E model are different from TR340E/TR520E model as shown below.**

PAGE	TR340E/TR520E MODEL	TR401E/TR402E MODEL
P5-2	52 3-736-807-01 BELT, GRIP	52 3-969-339-01 BELT, GRIP
	53 X-3945-455-1 CABINET (L) ASSY	53 X-3947-013-1 CABINET (L) ASSY
	63 X-3945-953-1 PANEL ASSY, F (TR520E)	63 X-3947-005-1 PANEL ASSY, F
	63 X-3946-175-1 PANEL ASSY, F (TR340E)	
	66 1-775-517-11 CABLE, FLEXIBLE FLAT 8P (TR520E)	66 1-777-088-11 CABLE, FLEXIBLE FLAT 8P (TR402E)
P5-3	101 A-7092-784-A CF-43 BOARD, COMPLETE (TR340E)	101 A-7093-104-A CF-43 BOARD, COMPLETE (TR401E)
	101 A-7092-867-A CF-43 BOARD, COMPLETE (TR520E)	101 A-7093-108-A CF-43 BOARD, COMPLETE (TR402E)
	110 1-801-215-11 DISPLAY PANEL, LIQUID CRYSTAL (TR520E)	110 1-801-657-11 DISPLAY PANEL, LIQUID CRYSTAL
	111 3-968-940-01 BUTTON (3), SLIDE	111 3-968-940-11 BUTTON (3), SLIDE
	113 X-3946-176-1 CABINET (R) ASSY (TR340E)	113 X-3947-007-1 CABINET (R) ASSY (TR401E)
	113 X-3946-257-1 CABINET (R) ASSY (TR520E)	113 X-3947-009-1 CABINET (R) ASSY (TR402E)
	115 3-968-940-01 BUTTON (3), SLIDE (TR520E)	115 3-968-939-11 BUTTON (2), SLIDE (TR402E ONLY)
	119 A-7072-603-A PW-113 BOARD, COMPLETE (TR520E)	119 A-7072-507-A PW-113 BOARD, COMPLETE (TR402E)
	122 3-968-932-01 LID, LITHIUM	122 3-968-932-11 LID, LITHIUM
	*123 3-968-927-01 SHEET, SWITCH ORNAMENTAL (TR520E)	*123 3-968-927-31 SHEET, SWITCH ORNAMENTAL (TR402E)
	124 1-517-529-11 LIGHT, BACK (TR520E)	124 Not Used
	126 Not supplied (TR520E)	*126 X-3947-288-1 HOLDER ASSY, LCD
	129 Not supplied (TR520E)	129 3-968-943-11 SHEET, VTR
P5-5	205 A-7092-573-A DD-80P BOARD, COMPLETE	205 A-7072-873-A DD-80P BOARD, COMPLETE
	206 A-7092-572-A VC-167P BOARD, COMPLETE (TR340E)	206 A-7093-103-A VC-167P BOARD, COMPLETE (TR401E)
	206 A-7092-866-A VC-167P BOARD, COMPLETE (TR520E)	206 A-7093-106-A VC-167P BOARD, COMPLETE (TR402E)
	211 1-547-735-51 FILTER BLOCK, OPTICAL (TR520E)	211 1-547-558-21 FILTER BLOCK, OPTICAL (TR402E)
	212 3-957-980-11 RUBBER (C), SEAL (TR340E)	212 3-946-857-11 RUBBER (S), SEAL
	212 3-960-149-11 RUBBER (3), SEAL (TR520E)	
	213 A-7072-503-A CD-156 BOARD, COMPLETE (TR520E)	213 A-7072-590-A CD-156 BOARD, COMPLETE (TR402E)
	217 A-7072-504-A TZ-5 BOARD, COMPLETE (TR520E)	217 A-7093-101-A TZ-5 BOARD, COMPLETE (TR402E)
	IC790 A-7030-495-A CCD BLOCK ASSY (AUTO) (ICX060AK-41) (TR520E)	IC790 A-7030-369-A CCD BLOCK ASSY (AUTO) (ICX055AK-12) (TR402E)

(P5-3)

5-1-3. CABINET (R) SECTION

☞ : points added parts. ☞ : points changed parts.



⟨ELECTRICAL PARTS LIST⟩

- **The repair parts lists of TR401E/TR402E model are different from TR340E/TR520E model as shown below.**

PAGE	TR340E/TR520E MODEL	TR401E/TR402E MODEL
P5-9	A-7072-503-A CD-156 BOARD, COMPLETE (TR520E) ****************************	A-7072-590-A CD-156 BOARD, COMPLETE (TR402E) ****************************
	C795 Not Used (TR340E is used)	C795 1-162-919-11 CERAMIC CHIP 22PF 5% 50V (TR402E)
	IC790 A-7030-660-A CCD BLOCK ASSY (060 SERVICE) (TR520E)	IC790 A-7030-369-B CCD BLOCK ASSY (055 SERVICE) (TR402E)
	R791 1-216-840-11 METAL CHIP 39K 5% 1/16W (TR520E)	R791 1-216-839-11 METAL CHIP 33K 5% 1/16W (TR402E)
	R792 1-216-820-11 METAL CHIP 820 5% 1/16W (TR520E)	R792 1-216-819-11 METAL CHIP 680 5% 1/16W (TR402E)
	R793 1-218-895-11 METAL CHIP 100K 0.50% 1/16W (TR520E)	R793 1-216-849-11 METAL CHIP 220K 5% 1/16W (TR402E)
	A-7092-784-A CF-43 BOARD, COMPLETE (TR340E) ************************** A-7092-867-A CF-43 BOARD, COMPLETE (TR520E) **************************	A-7093-104-A CF-43 BOARD, COMPLETE (TR401E) ************************** A-7093-108-A CF-43 BOARD, COMPLETE (TR402E) **************************
P5-10	C336 Used (TR520E)	C336 Not Used
	C337 Not Used (TR520E is used)	C337 1-162-915-11 CERAMIC CHIP 10PF 0.5PF 50V (TR401E)
	CN483 1-766-354-21 CONNECTOR, FFC/FPC 24P (TR520E)	CN483 1-750-344-11 CONNECTOR, FFC/FPC (ZIF) 24P
	D318,D331,Q300,Q309,Q311 Used (TR520E)	D318,D331,Q300,Q309,Q311 Not Used
	R328,R329,R330,R339,R340 Used (TR520E)	R328,R329,R330,R339,R340 Not Used
P5-11	R347,R348 Used (TR520E)	R347,R348 Not Used
	R360 Not Used (TR340E is used)	R360 1-216-864-11 METAL, CHIP 0 5% 1/16W (TR402E)
	R361 Not Used (TR340E is used)	R361 1-216-864-11 METAL, CHIP 0 5% 1/16W (TR402E)
	R480 Used (TR520E)	R480 Not Used
	A-7092-573-A DD-80P BOARD, COMPLETE ****************************	A-7072-873-A DD-80P BOARD, COMPLETE ****************************
P5-14	A-7072-603-A PW-113 BOARD, COMPLETE (TR520E) ****************************	A-7072-507-A PW-113 BOARD, COMPLETE (TR402E) ****************************
	CN584 Used (TR520E)	CN584 Not Used
	A-7072-504-A TZ-5 BOARD, COMPLETE (TR520E) *************************	A-7093-101-A TZ-5 BOARD, COMPLETE (TR402E) *************************
	C650-C661,C663-C666,C668,C669 Used (TR520E)	C650-C661,C663-C666,C668,C669 Not Used
	IC650-IC653 Used (TR520E)	IC650-IC653 Not Used
	IC655 8-752-855-05 IC CXP81120-024R (TR520E)	IC655 8-752-879-48 IC CXP81120-033R (TR402E)
	L650,Q650 Used (TR520E)	L650,Q650 Not Used
	R650-R656,R658-R670,R682 Used (TR520E)	R650-R656,R658-R670,R682 Not Used
	R683 1-218-891-11 METAL CHIP 68K 0.50% 1/16W (TR520E)	R683 1-216-864-11 METAL, CHIP 0 5% 1/16W (TR402E)
	R685 1-218-891-11 METAL CHIP 68K 0.50% 1/16W (TR520E)	R685 1-216-864-11 METAL, CHIP 0 5% 1/16W (TR402E)
	R684,R688,R689 Used (TR520E)	R684,R688,R689 Not Used
	SE650,SE651 Used (TR520E)	SE650,SE651 Not Used

Note 1: ACCESSORIES & PACKING MATERIALS LIST of TR401E/TR402E models is shown on page 22.

Note 2 :The VC-167P board is shown on pages 15 to 22.

L PARTS LIST⟩

ts lists of TR401E/TR402E model are different from TR340E/TR520E model as shown below.

TR340E/TR520E MODEL	TR401E/TR402E MODEL
A-7072-503-A CD-156 BOARD, COMPLETE (TR520E)	A-7072-590-A CD-156 BOARD, COMPLETE (TR402E)
***************************	***************************
Not Used (TR340E is used)	C795 1-162-919-11 CERAMIC CHIP 22PF 5% 50V (TR402E)
A-7030-660-A CCD BLOCK ASSY (060 SERVICE) (TR520E)	IC790 A-7030-369-B CCD BLOCK ASSY (055 SERVICE) (TR402E)
1-216-840-11 METAL CHIP 39K 5% 1/16W (TR520E)	R791 1-216-839-11 METAL CHIP 33K 5% 1/16W (TR402E)
1-216-820-11 METAL CHIP 820 5% 1/16W (TR520E)	R792 1-216-819-11 METAL CHIP 680 5% 1/16W (TR402E)
1-218-895-11 METAL CHIP 100K 0.50% 1/16W (TR520E)	R793 1-216-849-11 METAL CHIP 220K 5% 1/16W (TR402E)
A-7092-784-A CF-43 BOARD, COMPLETE (TR340E)	A-7093-104-A CF-43 BOARD, COMPLETE (TR401E)
*************************	*************************
A-7092-867-A CF-43 BOARD, COMPLETE (TR520E)	A-7093-108-A CF-43 BOARD, COMPLETE (TR402E)
*************************	*************************
Used (TR520E)	C336 Not Used
Not Used (TR520E is used)	C337 1-162-915-11 CERAMIC CHIP 10PF 0.5PF 50V (TR401E)
1-766-354-21 CONNECTOR, FFC/FPC 24P (TR520E)	CN483 1-750-344-11 CONNECTOR, FFC/FPC (ZIF) 24P
31,Q300,Q309,Q311 Used (TR520E)	D318,D331,Q300,Q309,Q311 Not Used
29,R330,R339,R340 Used (TR520E)	R328,R329,R330,R339,R340 Not Used
48 Used (TR520E)	R347,R348 Not Used
Not Used (TR340E is used)	R360 1-216-864-11 METAL, CHIP 0 5% 1/16W (TR402E)
Not Used (TR340E is used)	R361 1-216-864-11 METAL, CHIP 0 5% 1/16W (TR402E)
Used (TR520E)	R480 Not Used
-7092-573-A DD-80P BOARD, COMPLETE	A-7072-873-A DD-80P BOARD, COMPLETE
***************************	***************************
-7072-603-A PW-113 BOARD, COMPLETE (TR520E)	A-7072-507-A PW-113 BOARD, COMPLETE (TR402E)
***************************	***************************
Used (TR520E)	CN584 Not Used
-7072-504-A TZ-5 BOARD, COMPLETE (TR520E)	A-7093-101-A TZ-5 BOARD, COMPLETE (TR402E)
************************	************************
61,C663-C666,C668,C669 Used (TR520E)	C650-C661,C663-C666,C668,C669 Not Used
653 Used (TR520E)	IC650-IC653 Not Used
-752-855-05 IC CXP81120-024R (TR520E)	IC655 8-752-879-48 IC CXP81120-033R (TR402E)
0 Used (TR520E)	L650,Q650 Not Used
56,R658-R670,R682 Used (TR520E)	R650-R656,R658-R670,R682 Not Used
-218-891-11 METAL CHIP 68K 0.50% 1/16W (TR520E)	R683 1-216-864-11 METAL, CHIP 0 5% 1/16W (TR402E)
-218-891-11 METAL CHIP 68K 0.50% 1/16W (TR520E)	R685 1-216-864-11 METAL, CHIP 0 5% 1/16W (TR402E)
38,R689 Used (TR520E)	R684,R688,R689 Not Used
E651 Used (TR520E)	SE650,SE651 Not Used

RIES & PACKING MATERIALS LIST of TR401E/TR402E models is shown on page 22.

'P board is shown on pages 15 to 22.

Different from TR424E model

⟨EXPLODED VIEWS⟩

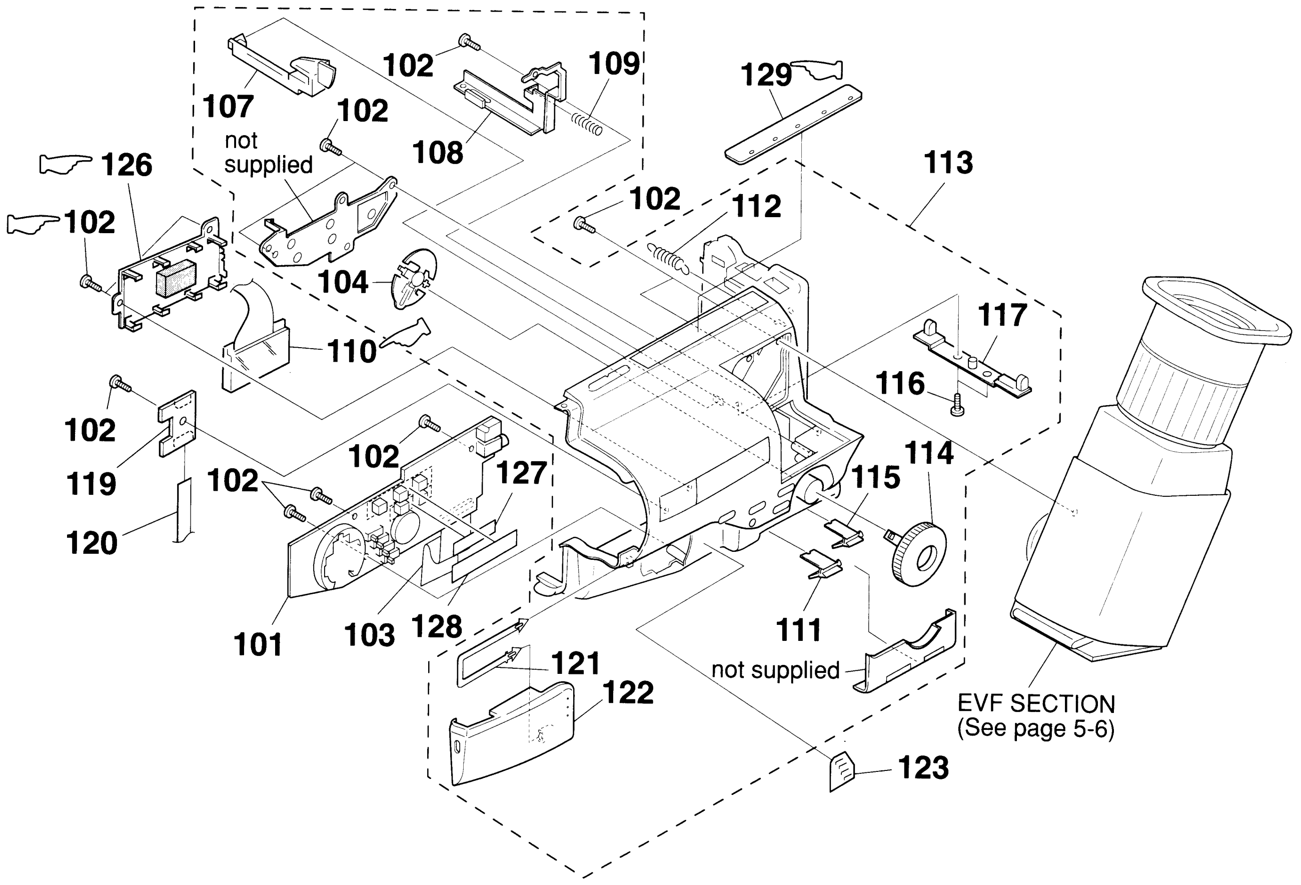
- **The repair parts lists of TR401E/TR402E model are different from TR424E model as shown below.**

PAGE	TR424E MODEL	TR401E/TR402E MODEL
P5-3	52 3-736-807-01 BELT, GRIP	52 3-969-339-01 BELT, GRIP
	53 X-3945-455-6 CABINET (L) ASSY	53 X-3947-072-1 CABINET (L) ASSY
	63 X-3946-347-1 PANEL ASSY, F	63 X-3947-005-1 PANEL ASSY, F
P5-5	101 A-7093-003-A CF-43 BOARD, COMPLETE	101 A-7093-104-A CF-43 BOARD, COMPLETE (TR401E)
		101 A-7093-108-A CF-43 BOARD, COMPLETE (TR402E)
	110 Not Used	110 1-801-657-11 DISPLAY PANEL, LIQUID CRYSTAL
	113 X-3946-535-1 CABINET (R) ASSY	113 X-3947-007-1 CABINET (R) ASSY (TR401E)
		113 X-3947-009-1 CABINET (R) ASSY (TR402E)
	115 3-968-939-11 BUTTON (2), SLIDE	115 3-968-939-01 BUTTON (2), SLIDE (TR402E ONLY)
	*123 3-968-927-01 SHEET, SWITCH ORNAMENTAL	*123 3-968-927-11 SHEET, SWITCH ORNAMENTAL (TR401E)
		*123 3-968-927-31 SHEET, SWITCH ORNAMENTAL (TR402E)
	126 Not supplied	*126 X-3947-288-1 HOLDER ASSY, LCD
	129 Not supplied	129 3-968-943-11 SHEET, VTR
P5-7	205 A-7092-573-A DD-80P BOARD, COMPLETE	205 A-7072-873-A DD-80P BOARD, COMPLETE
	206 A-7093-002-A VC-167P BOARD, COMPLETE	206 A-7093-103-A VC-167P BOARD, COMPLETE (TR401E)
		206 A-7093-106-A VC-167P BOARD, COMPLETE (TR402E)
	217 A-7072-591-A TZ-5 BOARD, COMPLETE	217 A-7093-101-A TZ-5 BOARD, COMPLETE (TR402E ONLY)
	218 1-660-435-11 FP-402 FLEXIBLE BOARD	218 1-660-435-11 FP-402 FLEXIBLE BOARD (TR402E ONLY)

(P5-5)

5-1-3 (2).CABINET (R) SECTION

☞ : points added parts.



⟨ELECTRICAL PARTS LIST⟩

- **The repair parts lists of TR401E/TR4**

PAGE	TR424E M
P5-11	A-7093-003-A CF-43 BOAR
	************
	C313 1-164-156-11 CERAMIC C
	C314 1-135-091-11 TANTALUM
	C337 Not Used
P5-12	CN483 Not Used
	D314 8-719-404-49 DIODE MA1
	D315 8-719-404-49 DIODE MA1
	D325 8-719-052-33 DIODE MAZ
	Q301 8-729-823-16 TRANSISTOR
	Q302 8-729-032-00 TRANSISTOR
	Q303 8-729-402-81 TRANSISTOR
	Q304 8-729-015-76 TRANSISTOR
	R332 Not Used (TR
	R336 1-216-833-11 METAL CHIP
	R337 1-216-825-11 METAL CHIP
	R338 1-216-857-11 METAL CHIP
P5-13	R360 1-216-864-11 METAL CHIP
	R361 1-216-864-11 METAL CHIP
	R365 1-216-864-11 METAL CHIP
	R395 1-216-833-11 METAL CHIP
	R485 Not Used
	S486 1-570-397-11 SWITCH, SLI
	A-7092-573-A DD-80P BOAR
	**************
P5-16	A-7072-591-A TZ-5 BOARD,
	**************
	IC655 8-752-855-05 IC CXP81

- ACCESSORIES & PACKING MATERIALS

Different from TR424E model

⟨EXPLODED VIEWS⟩

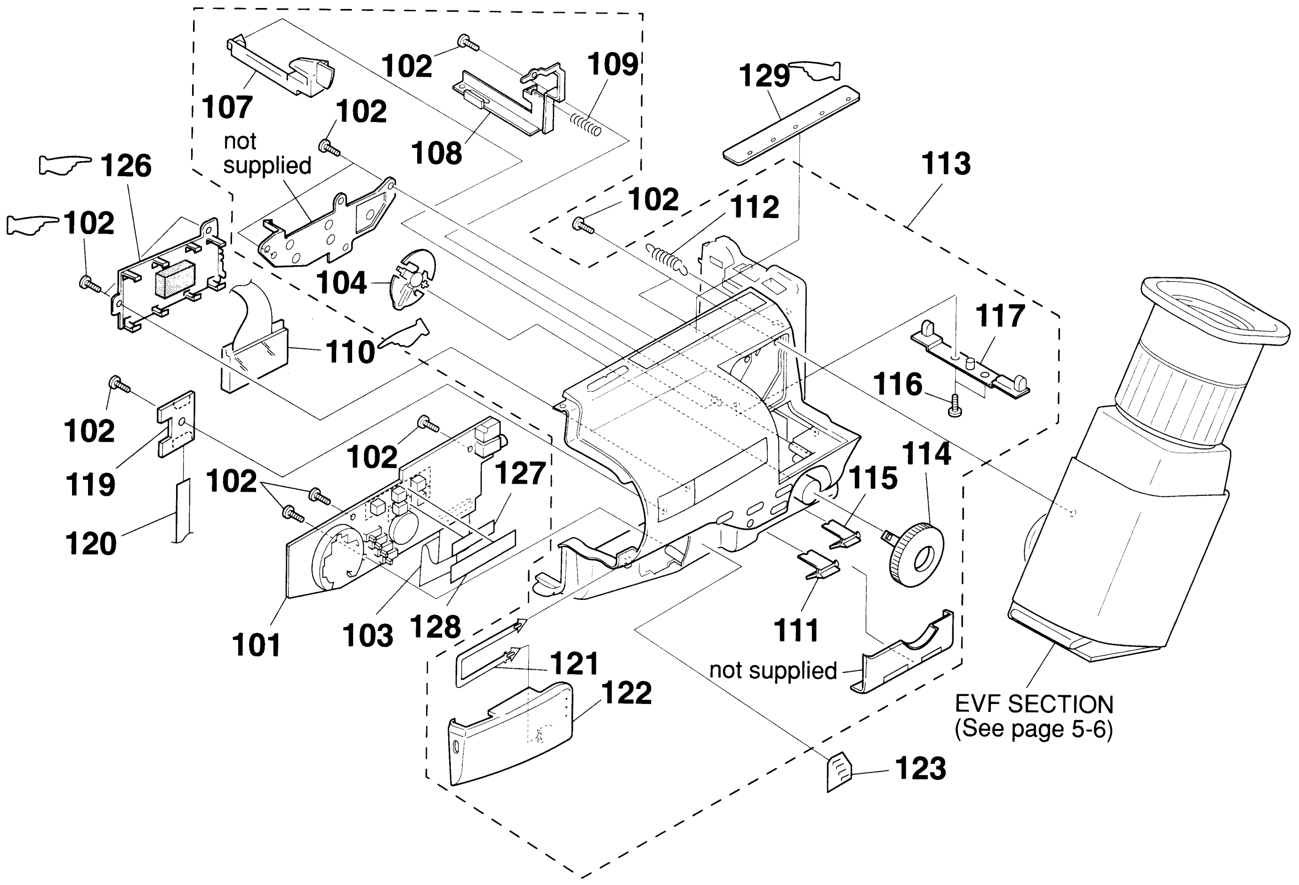
- **The repair parts lists of TR401E/TR402E model are different from TR424E model as shown below.**

PAGE	TR424E MODEL	TR401E/TR402E MODEL
P5-3	52 3-736-807-01 BELT, GRIP	52 3-969-339-01 BELT, GRIP
	53 X-3945-455-6 CABINET (L) ASSY	53 X-3947-072-1 CABINET (L) ASSY
	63 X-3946-347-1 PANEL ASSY, F	63 X-3947-005-1 PANEL ASSY, F
P5-5	101 A-7093-003-A CF-43 BOARD, COMPLETE	101 A-7093-104-A CF-43 BOARD, COMPLETE (TR401E)
		101 A-7093-108-A CF-43 BOARD, COMPLETE (TR402E)
	110 Not Used	110 1-801-657-11 DISPLAY PANEL, LIQUID CRYSTAL
	113 X-3946-535-1 CABINET (R) ASSY	113 X-3947-007-1 CABINET (R) ASSY (TR401E)
		113 X-3947-009-1 CABINET (R) ASSY (TR402E)
	115 3-968-939-11 BUTTON (2), SLIDE	115 3-968-939-01 BUTTON (2), SLIDE (TR402E ONLY)
	*123 3-968-927-01 SHEET, SWITCH ORNAMENTAL	*123 3-968-927-11 SHEET, SWITCH ORNAMENTAL (TR401E)
		*123 3-968-927-31 SHEET, SWITCH ORNAMENTAL (TR402E)
	126 Not supplied	*126 X-3947-288-1 HOLDER ASSY, LCD
	129 Not supplied	129 3-968-943-11 SHEET, VTR
P5-7	205 A-7092-573-A DD-80P BOARD, COMPLETE	205 A-7072-873-A DD-80P BOARD, COMPLETE
	206 A-7093-002-A VC-167P BOARD, COMPLETE	206 A-7093-103-A VC-167P BOARD, COMPLETE (TR401E)
		206 A-7093-106-A VC-167P BOARD, COMPLETE (TR402E)
	217 A-7072-591-A TZ-5 BOARD, COMPLETE	217 A-7093-101-A TZ-5 BOARD, COMPLETE (TR402E ONLY)
	218 1-660-435-11 FP-402 FLEXIBLE BOARD	218 1-660-435-11 FP-402 FLEXIBLE BOARD (TR402E ONLY)

(P5-5)

5-1-3 (2).CABINET (R) SECTION

☞ : points added parts.



⟨ELECTRICAL PARTS LIST⟩

- **The repair parts lists of TR401E/TR402E model are different from TR424E model as shown below.**

PAGE	TR424E MODEL	TR401E/TR402E MODEL
P5-11	A-7093-003-A CF-43 BOARD, COMPLETE **************************	A-7093-104-A CF-43 BOARD, COMPLETE (TR401E) *************************** A-7093-108-A CF-43 BOARD, COMPLETE (TR402E) ***************************
	C313 1-164-156-11 CERAMIC CHIP 0.1uF 25V	C313 1-164-156-11 CERAMIC CHIP 0.1uF 25V (TR402E ONLY)
	C314 1-135-091-11 TANTALUM CHIP 1uF 20% 16V	C314 1-135-091-00 TANTALUM CHIP 1uF 20% 16V (TR402E ONLY)
	C337 Not Used	C337 1-162-915-11 CERAMIC CHIP 10PF 0.5PF 50V
P5-12	CN483 Not Used	CN483 1-750-344-11 CONNECTOR, FFC/FPC (ZIF) 24P
	D314 8-719-404-49 DIODE MA111-TX	D314 8-719-404-49 DIODE MA111-TX (TR402E ONLY)
	D315 8-719-404-49 DIODE MA111-TX	D315 8-719-404-49 DIODE MA111-TX (TR402E ONLY)
	D325 8-719-052-33 DIODE MAZV082DFL	D325 8-719-052-33 DIODE MAZV082DFL (TR402E ONLY)
	Q301 8-729-823-16 TRANSISTOR 2SC4555-5.6.7-TL	Q301 8-729-823-16 TRANSISTOR 2SC4555-5.6.7-TL (TR402E ONLY)
	Q302 8-729-032-00 TRANSISTOR 2SJ381-TD	Q302 8-729-032-00 TRANSISTOR 2SJ381-TD (TR402E ONLY)
	Q303 8-729-402-81 TRANSISTOR XN4501-TW	Q303 8-729-402-81 TRANSISTOR XN4501-TW (TR402E ONLY)
	Q304 8-729-015-76 TRANSISTOR UN5211-TX	Q304 8-729-015-76 TRANSISTOR UN5211-TX (TR402E ONLY)
	R332 Not Used (TR420/TR420E is used.)	R332 1-216-864-11 METAL CHIP 0 5% 1/16W (TR401E ONLY)
	R336 1-216-833-11 METAL CHIP 10K 5% 1/16W	R336 1-216-833-11 METAL CHIP 10K 5% 1/16W (TR402E ONLY)
	R337 1-216-825-11 METAL CHIP 2.2K 5% 1/16W	R337 1-216-825-11 METAL CHIP 2.2K 5% 1/16W (TR402E ONLY)
	R338 1-216-857-11 METAL CHIP 1M 5% 1/16W	R338 1-216-857-11 METAL CHIP 1M 5% 1/16W (TR402E ONLY)
P5-13	R360 1-216-864-11 METAL CHIP 0 5% 1/16W	R360 1-216-864-11 METAL CHIP 0 5% 1/16W (TR402E ONLY)
	R361 1-216-864-11 METAL CHIP 0 5% 1/16W	R361 1-216-864-11 METAL CHIP 0 5% 1/16W (TR402E ONLY)
	R365 1-216-864-11 METAL CHIP 0 5% 1/16W	R365 1-216-864-11 METAL CHIP 0 5% 1/16W (TR402E ONLY)
	R395 1-216-833-11 METAL CHIP 10K 5% 1/16W	R395 1-216-833-11 METAL CHIP 10K 5% 1/16W (TR402E ONLY)
	R485 Not Used	R485 1-216-864-11 METAL CHIP 0 5% 1/16W
	S486 1-570-397-11 SWITCH, SLIDE (WIDE TV)	S486 1-570-397-11 SWITCH, SLIDE (WIDE TV) (TR402E ONLY)
	A-7092-573-A DD-80P BOARD, COMPLETE ****************************	A-7072-873-A DD-80P BOARD, COMPLETE ****************************
P5-16	A-7072-591-A TZ-5 BOARD, COMPLETE *************************	A-7093-101-A TZ-5 BOARD, COMPLETE (TR402E ONLY) *************************
	IC655 8-752-855-05 IC CXP81120-024R	IC655 8-752-879-48 IC CXP81120-033R (TR402E ONLY)

- ACCESSORIES & PACKING MATERIALS LIST of TR401E/TR402E models is shown on page 22.

VC-167P BOARD electrical parts list (TR401E/TR402E MODEL)

NOTE:

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: μF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: μH
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

Ref. No.	Part No.	Description			Remarks
	A-7093-103-A	VC-167P BOARD, COMPLETE (TR401E)			
		***********************			
	A-7093-106-A	VC-167P BOARD, COMPLETE (TR402E)			
		***********************			
		(Ref.No.1,000 Series)			
		< CAPACITOR >			
C076	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C077	1-164-346-11	CERAMIC CHIP	1uF		16V
C078	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C101	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C102	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C106	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C107	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C108	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C109	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C110	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C112	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C113	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C114	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C115	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C116	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C118	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C119	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C122	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C123	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C127	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C128	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C129	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C130	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C137	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C138	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C140	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C141	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C142	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C143	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C148	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C149	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C150	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C152	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C153	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C154	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C155	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C156	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C157	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C160	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C162	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C164	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C165	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C166	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C167	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C168	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C169	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C171	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C202	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C203	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C204	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C205	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C206	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C207	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C208	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C209	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C210	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C211	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C212	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C213	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C215	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C216	1-126-246-11	ELECT CHIP	220uF	20%	4V
C217	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C218	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C219	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C221	1-164-156-11	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description			Remarks
C223	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C224	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C225	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C226	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C227	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C229	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C230	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C233	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C234	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C235	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C236	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C237	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C238	1-104-912-11	TANTAL. CHIP	3.3uF	20%	6.3V
C242	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C243	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C244	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C245	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C246	1-135-073-00	TANTALUM CHIP	0.33uF	10%	35V
C247	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C248	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C252	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C254	1-164-237-11	CERAMIC CHIP	16PF	5%	50V
C260	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C263	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C265	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C266	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C267	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C269	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C270	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C271	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C400	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C401	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C402	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C403	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C404	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C405	1-162-907-11	CERAMIC CHIP	2PF	0.25PF	50V
C406	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C407	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C408	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C409	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C411	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C412	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C413	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C414	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C415	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C416	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C417	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C418	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C419	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C420	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C421	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C423	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C424	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C425	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C426	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C427	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C428	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C429	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C430	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C431	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C432	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C433	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C434	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C435	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C436	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C437	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C438	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C439	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C441	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C442	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C443	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C444	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C445	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C446	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C447	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C448	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C449	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C450	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C451	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C452	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C453	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C456	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C458	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C504	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C505	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C513	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C515	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C520	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C522	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C523	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C529	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C531	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C532	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C533	1-216-864-11	METAL CHIP	0	5%	1/16W
C534	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C535	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C537	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C540	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C543	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V
C546	1-126-205-11	ELECT CHIP	47uF	20%	6.3V

Ref. No.	Part No.	Description			Remarks
C548	1-107-685-11	TANTAL. CHIP	15uF	20%	6.3V
C550	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C554	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C555	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C556	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C557	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C558	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C561	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C571	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C572	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C573	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C574	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C575	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C576	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C577	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C578	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C602	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C603	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C604	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C606	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C607	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C608	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C609	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C610	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C613	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C614	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C615	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C619	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C620	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C701	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C704	1-164-346-11	CERAMIC CHIP	1uF		16V
C706	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C707	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C708	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C710	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C711	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C712	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C713	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C714	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C715	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C717	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C718	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C719	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C720	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C722	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C724	1-162-924-11	CERAMIC CHIP	56PF	5%	50V
C726	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C727	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C728	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C729	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V

Ref. No.	Part No.	Description			Remarks
C731	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C732	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C734	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C735	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C736	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C739	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C740	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C741	1-107-688-11	TANTAL. CHIP	1.5uF	20%	10V
C742	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C745	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C746	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C748	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C750	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C751	1-164-346-11	CERAMIC CHIP	1uF		16V
C754	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V (TR402E)
C755	1-164-346-11	CERAMIC CHIP	1uF		16V
C757	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C758	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C759	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C760	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V (TR402E)
C761	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TR402E)

< CONNECTOR >

	Ref. No.	Part No.	Description
	CN060	1-691-350-21	CONNECTOR, FFC/FPC (ZIF) 12P
	CN101	1-766-341-21	CONNECTOR, FFC/FPC 11P
	CN102	1-764-708-21	CONNECTOR, FFC/FPC (LIF) 9P
	CN300	1-774-054-21	CONNECTOR, FFC/FPC (ZIF) 45P
*	CN301	1-691-931-11	CONNECTOR, BOARD TO BOARD 38P
	CN400	1-766-340-21	CONNECTOR, FFC/FPC 10P
	CN401	1-766-342-21	CONNECTOR, FFC/FPC 12P
	CN402	1-766-345-21	CONNECTOR, FFC/FPC 15P
	CN403	1-766-644-21	CONNECTOR, FFC/FPC 8P
	CN501	1-764-707-21	CONNECTOR, FFC/FPC (LIF) 8P
	CN601	1-764-529-11	CONNECTOR, FFC/FPC (ZIF) 22P
	CN701	1-750-630-11	CONNECTOR, FFC/FPC (ZIF) 16P
	CN702	1-691-356-21	CONNECTOR, FFC/FPC (ZIF) 18P (TR402E)

< DIODE >

Ref. No.	Part No.	Description	
D101	8-719-404-49	DIODE	MA111
D102	8-719-820-41	DIODE	1SS302
D103	8-719-059-51	DIODE	MA3J142E0LS0
D201	8-719-059-51	DIODE	MA3J142E0LS0
D202	8-719-404-49	DIODE	MA111
D203	8-719-059-50	DIODE	MA3J142D0LS0
D301	8-719-404-49	DIODE	MA111
D302	8-719-404-49	DIODE	MA111
D309	8-719-037-73	DIODE	CL-181Y-C
D310	8-719-037-73	DIODE	CL-181Y-C

Ref. No.	Part No.	Description	Remarks
D311	8-719-037-73	DIODE CL-181Y-C	
D312	8-719-037-73	DIODE CL-181Y-C	
D313	8-719-037-73	DIODE CL-181Y-C	
D317	1-216-296-91	DIODE CONDUCTOR, CHIP (3216)	
D318	1-216-296-91	DIODE CONDUCTOR, CHIP (3216)	
D319	8-719-033-13	DIODE CL-170Y-CD-T	
D701	8-719-059-50	DIODE MA3J142D0LS0	
D702	8-719-404-49	DIODE MA111	
D703	8-719-404-49	DIODE MA111	
D705	8-719-002-81	DIODE 1T363-01-T8A	
D706	8-713-102-28	DIODE 1T379-04-T8A	

< IC >

Ref. No.	Part No.	Description	Remarks
IC061	8-759-290-12	IC M62370GP-650D	
IC101	8-752-071-48	IC CXA2002R	
IC201	8-752-075-45	IC CXA2051R	
IC202	8-759-035-90	IC TC7S02F	
IC204	8-759-234-20	IC TC7S08F	
IC400	8-752-864-19	IC CXP87460-012R	
IC401	8-759-278-57	IC AK6420HF-E2	
IC402	8-752-078-49	IC CXA1814Q	
IC403	8-759-327-67	IC LB1950V-TLM	
IC404	8-759-327-62	IC TA8482FN-EL	
IC405	8-759-234-20	IC TC7S08F	
IC501	8-752-075-66	IC CXA1837R-T6	
IC570	8-759-334-09	IC CXA2003N-T4	
IC601	8-759-337-40	IC NJM2904V(TE2)	
IC602	8-759-337-41	IC NJM2902V(TE2)	
IC603	8-759-351-46	IC MPC17A34VMEL	
IC604	8-752-365-65	IC CXD2126N	
IC701	8-752-372-14	IC CXD1267AN	
IC702	8-752-374-25	IC CXD2415R	
IC703	8-752-073-11	IC CXA2006Q-T4	
IC704	8-752-375-80	IC CXD2312R-T4	
IC705	8-752-374-02	IC CXD2418R-T4	
IC706	8-759-349-58	IC CXD8562R-T6	
IC707	8-759-446-62	IC HG51D267FGTL (TR402E)	
IC708	8-759-337-40	IC NJM2904V(TE2)	
IC709	8-759-198-34	IC TA75S558F	
IC710	8-759-198-34	IC TA75S558F	

< COIL >

Ref. No.	Part No.	Description	Remarks
L101	1-412-066-21	INDUCTOR CHIP 220uH	
L102	1-412-066-21	INDUCTOR CHIP 220uH	
L103	1-412-066-21	INDUCTOR CHIP 220uH	
L104	1-412-952-11	INDUCTOR 12uH	
L106	1-412-957-11	INDUCTOR 33uH	
L107	1-412-280-31	INDUCTOR 330uH	
L108	1-412-282-41	INDUCTOR 470uH	
L109	1-412-355-41	INDUCTOR 180uH	
L113	1-414-078-11	INDUCTOR 10uH	
L114	1-412-355-41	INDUCTOR 180uH	
L115	1-412-957-11	INDUCTOR 33uH	
L118	1-414-373-31	INDUCTOR CHIP 10uH	
L119	1-412-950-11	INDUCTOR 8.2uH	
L120	1-410-658-31	INDUCTOR CHIP 220uH	
L121	1-410-655-31	INDUCTOR CHIP 120uH	
L202	1-412-064-11	INDUCTOR CHIP 100uH	
L203	1-412-962-11	INDUCTOR 82uH	
L207	1-412-962-11	INDUCTOR 82uH	
L210	1-412-951-11	INDUCTOR 10uH	
L211	1-412-058-11	INDUCTOR CHIP 10uH	
L212	1-412-058-11	INDUCTOR CHIP 10uH	
L213	1-414-196-41	INDUCTOR 47uH	
L214	1-412-056-11	INDUCTOR CHIP 4.7uH	
L215	1-412-962-11	INDUCTOR 82uH	
L216	1-414-170-41	INDUCTOR 100uH	
L400	1-412-058-11	INDUCTOR CHIP 10uH	
L401	1-412-959-11	INDUCTOR 47uH	
L570	1-414-078-11	INDUCTOR 10uH	
L602	1-412-058-11	INDUCTOR CHIP 10uH	
L704	1-412-058-11	INDUCTOR CHIP 10uH	
L707	1-412-979-21	INDUCTOR 1uH	
L710	1-412-058-11	INDUCTOR CHIP 10uH	
L712	1-414-078-11	INDUCTOR 10uH	
L714	1-412-058-11	INDUCTOR CHIP 10uH	
L715	1-414-078-11	INDUCTOR 10uH	
L716	1-414-078-11	INDUCTOR 10uH (TR402E)	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remarks
Q061	8-729-101-07	TRANSISTOR 2SB798-DL	
Q062	8-729-905-38	TRANSISTOR 2SC4081T106R	
Q063	8-729-905-38	TRANSISTOR 2SC4081T106R	
Q064	8-729-905-38	TRANSISTOR 2SC4081T106R	
Q065	8-729-905-38	TRANSISTOR 2SC4081T106R	
Q101	8-729-905-38	TRANSISTOR 2SC4081T106R	
Q102	8-729-402-48	TRANSISTOR UN521E	
Q104	8-729-905-38	TRANSISTOR 2SC4081T106R	
Q106	8-729-026-52	TRANSISTOR 2SA1576-R	
Q107	8-729-824-02	TRANSISTOR 2SA1838	
Q108	8-729-402-42	TRANSISTOR UN5213	
Q109	8-729-402-42	TRANSISTOR UN5213	
Q112	8-729-905-38	TRANSISTOR 2SC4081T106R	
Q113	8-729-905-38	TRANSISTOR 2SC4081T106R	
Q114	8-729-402-42	TRANSISTOR UN5213	
Q120	8-729-403-35	TRANSISTOR UN5113	
Q123	8-729-015-74	TRANSISTOR UN5111	
Q124	8-729-117-73	TRANSISTOR 2SC4178-F14	
Q125	8-729-905-38	TRANSISTOR 2SC4081T106R	
Q126	8-729-402-42	TRANSISTOR UN5213-TX	
Q129	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q130	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	
Q131	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q202	8-729-905-38	TRANSISTOR 2SC4081T106R	
Q206	8-729-420-24	TRANSISTOR 2SB1218A-QRS	

Ref. No.	Part No.	Description			Remarks
Q208	8-729-402-42	TRANSISTOR	UN5213		
Q212	8-729-420-24	TRANSISTOR	2SB1218A-QRS		
Q213	8-729-402-42	TRANSISTOR	UN5213		
Q214	8-729-420-24	TRANSISTOR	2SB1218A-QRS		
Q215	8-729-013-15	TRANSISTOR	2SC4909		
Q216	8-729-420-20	TRANSISTOR	XN4312		
Q217	8-729-420-12	TRANSISTOR	XN4213		
Q218	8-729-420-24	TRANSISTOR	2SB1218A-QRS		
Q219	8-729-905-38	TRANSISTOR	2SC4081T106R		
Q221	8-729-402-42	TRANSISTOR	UN5213		
Q222	8-729-402-42	TRANSISTOR	UN5213		
Q223	8-729-905-38	TRANSISTOR	2SC4081T106R		
Q224	8-729-420-24	TRANSISTOR	2SB1218A-QRS		
Q226	8-729-905-38	TRANSISTOR	2SC4081T106R		
Q227	8-729-013-15	TRANSISTOR	2SC4909		
Q301	8-729-807-86	TRANSISTOR	2SB1295-UL5		
Q302	8-729-402-42	TRANSISTOR	UN5213		
Q303	8-729-015-76	TRANSISTOR	UN5211		
Q400	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX		
Q401	8-729-905-38	TRANSISTOR	2SC4081T106R		
Q501	8-729-420-53	TRANSISTOR	UN5115		
Q507	8-729-421-26	TRANSISTOR	UN5216QRS		
Q570	8-729-402-42	TRANSISTOR	UN5213		
Q601	8-729-905-38	TRANSISTOR	2SC4081T106R		
Q602	8-729-905-38	TRANSISTOR	2SC4081T106R		
Q603	8-729-420-53	TRANSISTOR	UN5115		
Q701	8-729-403-27	TRANSISTOR	XN4401		
Q703	8-729-402-42	TRANSISTOR	UN5213		
Q704	8-729-403-35	TRANSISTOR	UN5113		
Q705	8-729-403-35	TRANSISTOR	UN5113		
Q706	8-729-402-42	TRANSISTOR	UN5213		
Q750	8-729-420-24	TRANSISTOR	2SB1218A-QRS		
Q752	8-729-420-24	TRANSISTOR	2SB1218A-QRS		

< RESISTOR >

Ref. No.	Part No.	Description			Remarks
R062	1-216-864-11	METAL CHIP	0	5%	1/16W
R077	1-216-138-00	METAL CHIP	3.3	5%	1/8W
R078	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R079	1-216-820-11	METAL CHIP	820	5%	1/16W
R080	1-216-836-11	METAL CHIP	18K	5%	1/16W
R081	1-216-818-11	METAL CHIP	560	5%	1/16W
R082	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R083	1-216-837-11	METAL CHIP	22K	5%	1/16W
R084	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R085	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R086	1-216-834-11	METAL CHIP	12K	5%	1/16W
R087	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R088	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R091	1-216-841-11	METAL CHIP	47K	5%	1/16W
R092	1-216-841-11	METAL CHIP	47K	5%	1/16W
R101	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R102	1-216-815-11	METAL CHIP	330	5%	1/16W
R103	1-216-815-11	METAL CHIP	330	5%	1/16W
R104	1-216-797-11	METAL CHIP	10	5%	1/16W
R105	1-216-821-11	METAL CHIP	1K	5%	1/16W
R106	1-218-875-11	METAL GLAZE	15K	0.50%	1/16W
R107	1-216-836-11	METAL CHIP	18K	5%	1/16W
R108	1-216-864-11	METAL CHIP	0	5%	1/16W
R109	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R110	1-216-836-11	METAL CHIP	18K	5%	1/16W
R111	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R114	1-216-833-11	METAL CHIP	10K	5%	1/16W
R115	1-216-845-11	METAL CHIP	100K	5%	1/16W
R116	1-216-853-11	METAL CHIP	470K	5%	1/16W
R117	1-216-847-11	METAL CHIP	150K	5%	1/16W
R127	1-216-833-11	METAL CHIP	10K	5%	1/16W
R128	1-216-839-11	METAL CHIP	33K	5%	1/16W
R129	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R132	1-216-813-11	METAL CHIP	220	5%	1/16W
R133	1-216-818-11	METAL CHIP	560	5%	1/16W
R134	1-216-821-11	METAL CHIP	1K	5%	1/16W
R141	1-216-816-11	METAL CHIP	390	5%	1/16W
R149	1-216-821-11	METAL CHIP	1K	5%	1/16W
R150	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R152	1-216-834-11	METAL CHIP	12K	5%	1/16W
R153	1-216-833-11	METAL CHIP	10K	5%	1/16W
R154	1-216-817-11	METAL CHIP	470	5%	1/16W
R155	1-216-807-11	METAL CHIP	68	5%	1/16W
R156	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R157	1-216-816-11	METAL CHIP	390	5%	1/16W
R158	1-216-819-11	METAL CHIP	680	5%	1/16W
R159	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R160	1-216-821-11	METAL CHIP	1K	5%	1/16W
R161	1-216-864-11	METAL CHIP	0	5%	1/16W
R162	1-216-835-11	METAL CHIP	15K	5%	1/16W
R163	1-216-840-11	METAL CHIP	39K	5%	1/16W
R164	1-216-864-11	METAL CHIP	0	5%	1/16W
R165	1-216-845-11	METAL CHIP	100K	5%	1/16W
R166	1-216-836-11	METAL CHIP	18K	5%	1/16W
R167	1-216-836-11	METAL CHIP	18K	5%	1/16W
R168	1-216-821-11	METAL CHIP	1K	5%	1/16W
R169	1-216-804-11	METAL CHIP	39	5%	1/16W
R170	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R171	1-216-840-11	METAL CHIP	39K	5%	1/16W
R172	1-216-835-11	METAL CHIP	15K	5%	1/16W
R173	1-216-864-11	METAL CHIP	0	5%	1/16W
R176	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R177	1-216-821-11	METAL CHIP	1K	5%	1/16W
R178	1-216-821-11	METAL CHIP	1K	5%	1/16W
R179	1-216-817-11	METAL CHIP	470	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R180	1-216-818-11	METAL CHIP	560	5%	1/16W
R181	1-216-818-11	METAL CHIP	560	5%	1/16W
R182	1-216-809-11	METAL CHIP	100	5%	1/16W
R183	1-216-818-11	METAL CHIP	560	5%	1/16W
R184	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R185	1-216-818-11	METAL CHIP	560	5%	1/16W
R186	1-216-818-11	METAL CHIP	560	5%	1/16W
R187	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R188	1-216-837-11	METAL CHIP	22K	5%	1/16W
R189	1-216-837-11	METAL CHIP	22K	5%	1/16W
R190	1-216-837-11	METAL CHIP	22K	5%	1/16W
R191	1-216-839-11	METAL CHIP	33K	5%	1/16W
R192	1-216-814-11	METAL CHIP	270	5%	1/16W
R193	1-216-813-11	METAL CHIP	220	5%	1/16W
R194	1-216-803-11	METAL CHIP	33	5%	1/16W
R196	1-216-818-11	METAL CHIP	560	5%	1/16W
R197	1-216-864-11	METAL CHIP	0	5%	1/16W
R201	1-216-833-11	METAL CHIP	10K	5%	1/16W
R202	1-216-836-11	METAL CHIP	18K	5%	1/16W
R203	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R204	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R210	1-216-864-11	METAL CHIP	0	5%	1/16W
R212	1-216-841-11	METAL CHIP	47K	5%	1/16W
R213	1-216-841-11	METAL CHIP	47K	5%	1/16W
R214	1-216-807-11	METAL CHIP	68	5%	1/16W
R215	1-216-821-11	METAL CHIP	1K	5%	1/16W
R216	1-216-821-11	METAL CHIP	1K	5%	1/16W
R218	1-218-879-11	METAL GLAZE	22K	0.50%	1/16W
R219	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R220	1-216-833-11	METAL CHIP	10K	5%	1/16W
R221	1-216-833-11	METAL CHIP	10K	5%	1/16W
R222	1-216-818-11	METAL CHIP	560	5%	1/16W
R223	1-216-821-11	METAL CHIP	1K	5%	1/16W
R225	1-216-833-11	METAL CHIP	10K	5%	1/16W
R226	1-216-833-11	METAL CHIP	10K	5%	1/16W
R228	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R229	1-218-863-11	METAL GLAZE	4.7K	0.50%	1/16W
R230	1-216-821-11	METAL CHIP	1K	5%	1/16W
R232	1-216-821-11	METAL CHIP	1K	5%	1/16W
R234	1-218-849-11	METAL GLAZE	1.2K	0.50%	1/16W
R235	1-216-821-11	METAL CHIP	1K	5%	1/16W
R239	1-216-864-11	METAL CHIP	0	5%	1/16W
R241	1-218-839-11	METAL GLAZE	470	0.50%	1/16W
R243	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R244	1-216-843-11	METAL CHIP	68K	5%	1/16W
R247	1-216-833-11	METAL CHIP	10K	5%	1/16W
R248	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R249	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R254	1-216-841-11	METAL CHIP	47K	5%	1/16W
R255	1-216-827-11	METAL CHIP	3.3K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R256	1-216-833-11	METAL CHIP	10K	5%	1/16W
R257	1-216-821-11	METAL CHIP	1K	5%	1/16W
R259	1-216-833-11	METAL CHIP	10K	5%	1/16W
R260	1-216-817-11	METAL CHIP	470	5%	1/16W
R261	1-216-841-11	METAL CHIP	47K	5%	1/16W
R262	1-216-837-11	METAL CHIP	22K	5%	1/16W
R265	1-216-821-11	METAL CHIP	1K	5%	1/16W
R266	1-216-864-11	METAL CHIP	0	5%	1/16W
R267	1-216-864-11	METAL CHIP	0	5%	1/16W
R268	1-216-818-11	METAL CHIP	560	5%	1/16W
R270	1-216-817-11	METAL CHIP	470	5%	1/16W
R271	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R272	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R273	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R274	1-216-813-11	METAL CHIP	220	5%	1/16W
R276	1-216-864-11	METAL CHIP	0	5%	1/16W
R277	1-216-819-11	METAL CHIP	680	5%	1/16W
R279	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R281	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R283	1-216-819-11	METAL CHIP	680	5%	1/16W
R284	1-216-819-11	METAL CHIP	680	5%	1/16W
R286	1-216-836-11	METAL CHIP	18K	5%	1/16W
R287	1-216-864-11	METAL CHIP	0	5%	1/16W
R289	1-216-839-11	METAL CHIP	33K	5%	1/16W
R290	1-216-864-11	METAL CHIP	0	5%	1/16W
R291	1-216-864-11	METAL CHIP	0	5%	1/16W
R292	1-216-857-11	METAL CHIP	1M	5%	1/16W
R293	1-216-817-11	METAL CHIP	470	5%	1/16W
R294	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R295	1-216-852-11	METAL CHIP	390K	5%	1/16W
R296	1-216-849-11	METAL CHIP	220K	5%	1/16W
R297	1-216-842-11	METAL CHIP	56K	5%	1/16W
R298	1-216-833-11	METAL CHIP	10K	5%	1/16W
R299	1-218-272-11	METAL GLAZE	5.1K	5%	1/16W
R301	1-216-833-11	METAL CHIP	10K	5%	1/16W
R302	1-216-833-11	METAL CHIP	10K	5%	1/16W
R303	1-216-841-11	METAL CHIP	47K	5%	1/16W
R304	1-216-841-11	METAL CHIP	47K	5%	1/16W
R305	1-216-841-11	METAL CHIP	47K	5%	1/16W
R307	1-216-833-11	METAL CHIP	10K	5%	1/16W
R308	1-216-817-11	METAL CHIP	470	5%	1/16W
R309	1-216-841-11	METAL CHIP	47K	5%	1/16W
R310	1-208-762-11	METAL GLAZE	150	0.50%	1/10W
R311	1-208-750-11	METAL GLAZE	47	0.50%	1/10W
R312	1-208-762-11	METAL GLAZE	150	0.50%	1/10W
R313	1-208-762-11	METAL GLAZE	150	0.50%	1/10W
R314	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R315	1-218-290-11	METAL GLAZE	6.2K	5%	1/16W
R316	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R317	1-218-290-11	METAL GLAZE	6.2K	5%	1/16W

Ref. No.	Part No.	Description				Remarks
R318	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R319	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R320	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R321	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R327	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R328	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R329	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R330	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R331	1-216-864-11	METAL CHIP	0	5%	1/16W	
R333	1-216-864-11	METAL CHIP	0	5%	1/16W	
R334	1-208-766-11	METAL GLAZE	220	0.50%	1/10W	
R400	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R401	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R402	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R403	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R404	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R405	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R406	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R407	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R411	1-216-864-11	METAL CHIP	0	5%	1/16W	
R417	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R418	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R419	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R420	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R421	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R422	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R423	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R425	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R426	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R427	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R428	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R429	1-216-800-11	METAL GLAZE	18	5%	1/16W	
R430	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R434	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R436	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R437	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R438	1-216-864-11	METAL CHIP	0	5%	1/16W	
R439	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R440	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R441	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R442	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R444	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R445	1-216-864-11	METAL CHIP	0	5%	1/16W	
R446	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R447	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R448	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R449	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R450	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R451	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R452	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	

Ref. No.	Part No.	Description				Remarks
R453	1-217-671-11	METAL CHIP	1	5%	1/10W	
R454	1-217-671-11	METAL CHIP	1	5%	1/10W	
R455	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R456	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R458	1-217-671-11	METAL CHIP	1	5%	1/10W	
R459	1-217-671-11	METAL CHIP	1	5%	1/10W	
R460	1-217-671-11	METAL CHIP	1	5%	1/10W	
R461	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R462	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R463	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R464	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R465	1-216-808-11	METAL CHIP	82	5%	1/16W	
R466	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R467	1-216-019-00	METAL CHIP	56	5%	1/10W	
R468	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R469	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R471	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R472	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R473	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R474	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R475	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R476	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R477	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R478	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R479	1-216-817-11	METAL CHIP	470	5%	1/16W	
R481	1-216-817-11	METAL CHIP	470	5%	1/16W	
R482	1-216-817-11	METAL CHIP	470	5%	1/16W	
R501	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R503	1-216-864-11	METAL CHIP	0	5%	1/16W	
R506	1-218-893-11	METAL GLAZE	82K	0.50%	1/16W	
R514	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R515	1-216-864-11	METAL CHIP	0	5%	1/16W	
R517	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R520	1-216-864-11	METAL CHIP	0	5%	1/16W	
R522	1-216-817-11	METAL CHIP	470	5%	1/16W	
R525	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R530	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R531	1-216-817-11	METAL CHIP	470	5%	1/16W	
R534	1-216-864-11	METAL CHIP	0	5%	1/16W	
R537	1-216-864-11	METAL CHIP	0	5%	1/16W	
R556	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R570	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R571	1-218-871-11	METAL GLAZE	10K	0.50%	1/16W	
R575	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R581	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R601	1-216-001-00	METAL CHIP	10	5%	1/10W	
R603	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R604	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R605	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R606	1-216-836-11	METAL CHIP	18K	5%	1/16W	

Ref. No.	Part No.	Description			Remarks
R607	1-216-848-11	METAL CHIP	180K	5%	1/16W
R608	1-216-848-11	METAL CHIP	180K	5%	1/16W
R609	1-216-848-11	METAL CHIP	180K	5%	1/16W
R610	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R611	1-216-815-11	METAL CHIP	330	5%	1/16W
R612	1-216-845-11	METAL CHIP	100K	5%	1/16W
R613	1-216-834-11	METAL CHIP	12K	5%	1/16W
R614	1-216-834-11	METAL CHIP	12K	5%	1/16W
R615	1-216-845-11	METAL CHIP	100K	5%	1/16W
R616	1-216-837-11	METAL CHIP	22K	5%	1/16W
R618	1-216-837-11	METAL CHIP	22K	5%	1/16W
R619	1-216-837-11	METAL CHIP	22K	5%	1/16W
R620	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R621	1-216-833-11	METAL CHIP	10K	5%	1/16W
R623	1-216-864-11	METAL CHIP	0	5%	1/16W
R628	1-216-821-11	METAL CHIP	1K	5%	1/16W
R629	1-216-821-11	METAL CHIP	1K	5%	1/16W
R630	1-216-841-11	METAL CHIP	47K	5%	1/16W
R631	1-216-841-11	METAL CHIP	47K	5%	1/16W
R632	1-216-848-11	METAL CHIP	180K	5%	1/16W
R701	1-216-845-11	METAL CHIP	100K	5%	1/16W
R702	1-216-845-11	METAL CHIP	100K	5%	1/16W
R703	1-216-857-11	METAL CHIP	1M	5%	1/16W
R704	1-216-845-11	METAL CHIP	100K	5%	1/16W
R706	1-216-839-11	METAL CHIP	33K	5%	1/16W
R707	1-216-845-11	METAL CHIP	100K	5%	1/16W
R708	1-216-864-11	METAL CHIP	0	5%	1/16W
R709	1-218-847-11	METAL GLAZE	1K	0.50%	1/16W
R710	1-218-876-11	METAL GLAZE	16K	0.50%	1/16W
R713	1-216-833-11	METAL CHIP	10K	5%	1/16W
R714	1-216-857-11	METAL CHIP	1M	5%	1/16W
R715	1-216-845-11	METAL CHIP	100K	5%	1/16W
R717	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R719	1-216-818-11	METAL CHIP	560	5%	1/16W
R720	1-216-818-11	METAL CHIP	560	5%	1/16W
R721	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R722	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R723	1-216-818-11	METAL CHIP	560	5%	1/16W
R724	1-216-818-11	METAL CHIP	560	5%	1/16W
R725	1-216-864-11	METAL CHIP	0	5%	1/16W
R726	1-216-846-11	METAL CHIP	120K	5%	1/16W
R727	1-216-839-11	METAL CHIP	33K	5%	1/16W
R728	1-216-853-11	METAL CHIP	470K	5%	1/16W
R729	1-216-864-11	METAL CHIP	0	5%	1/16W
R730	1-216-864-11	METAL CHIP	0	5%	1/16W
R732	1-216-841-11	METAL CHIP	47K	5%	1/16W
R733	1-216-841-11	METAL CHIP	47K	5%	1/16W
R734	1-216-841-11	METAL CHIP	47K	5%	1/16W
R735	1-216-841-11	METAL CHIP	47K	5%	1/16W
R740	1-216-839-11	METAL CHIP	33K	5%	1/16W

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
R741	1-216-841-11	METAL CHIP	47K	5%	1/16W
R742	1-216-837-11	METAL CHIP	22K	5%	1/16W
R743	1-216-839-11	METAL CHIP	33K	5%	1/16W
R744	1-216-841-11	METAL CHIP	47K	5%	1/16W
R745	1-216-837-11	METAL CHIP	22K	5%	1/16W
R751	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R756	1-216-864-11	METAL CHIP	0	5%	1/16W
R757	1-216-864-11	METAL CHIP	0	5%	1/16W
R758	1-216-833-11	METAL CHIP	10K	5%	1/16W
R759	1-216-836-11	METAL CHIP	18K	5%	1/16W
R775	1-216-829-11	METAL CHIP	4.7K	5%	1/16W

< SWITCH >

S301	1-692-088-41	SWITCH, TACTILE	(EDITSEARCH +)
S302	1-692-088-41	SWITCH, TACTILE	(EDITSEARCH -)
S303	1-692-088-41	SWITCH, TACTILE	(PLAY)
S304	1-692-088-41	SWITCH, TACTILE	(PAUSE)
S305	1-692-088-41	SWITCH, TACTILE	(REW)
S306	1-692-088-41	SWITCH, TACTILE	(FF)
S307	1-692-088-41	SWITCH, TACTILE	(STOP)

< VIBRATOR >

X400	1-760-315-11	VIBRATOR, CRYSTAL	11.71875MHz
X701	1-760-321-11	VIBRATOR, CRYSTAL	28.375MHz
X702	1-579-780-21	VIBRATOR, CRYSTAL	17.734475MHz

ACCESSORIES & PACKING MATERIALS
****

⚠	A-7003-840-A	AC-V16 AC POWER ADAPTOR (EXCEPT UK)
⚠	A-7003-842-A	AC-V16 AC POWER ADAPTOR (UK)
	A-7092-608-A	CASE (N) ASSY, BATTERY
	1-473-342-11	REMOTE COMMANDER (RMT-713)
	1-574-039-21	CORD, CONNECTION (AV)1.5m
	1-764-622-11	ADAPTOR, CONVERSION
	1-770-783-11	CONNECTOR, CONVERSION
	3-800-844-11	INSTRUCTION
	3-858-958-11	MANUAL, INSTRUCTION (English/Russian)
	3-858-958-21	MANUAL, INSTRUCTION (German/Italian)
	3-858-958-31	MANUAL, INSTRUCTION (Spanish/Portuguese)
	3-858-958-41	MANUAL, INSTRUCTION (French/Dutch)
	3-858-958-51	MANUAL, INSTRUCTION (Swedish/Polish)
	3-947-969-21	BELT (S), SHOULDER
*	3-970-455-21	INDIVIDUAL CARTON (TR401E)
*	3-970-455-31	INDIVIDUAL CARTON (TR402E)
*	3-970-546-01	CUSHION, ACC
*	3-970-547-01	CUSHION (LOWER)
**	NP-33	BATTERY PACK

NOTE.
**MARK PARTS IS AVAILABLE AS OPTIONAL ACCESSORY.

ADJUSTMENT

(P6-6, 6-7)

Page F Address List ☞ : points changed portion. ☛ : points deleted portion.

(P6-6)

Address	Adjustment Data	
	Initial Value	Memo Column
03	04	☞ 04
3C	13	
3D	13	
3E	AD	
3F	15	
40	34	
42	4A	
44	80	☛
45	64	64
46	46	46
47	00	00
48	55	55
4D	92	92

(P6-7)

Address	Adjustment Data	
	Initial Value	Memo Column
64	2C	2E
87	1F	1F
88	20	20
89	82	82
8A	04	04

(P6-11)

7. Page F data modification (TR401E/TR402E MODEL)

All the data of page F are automatically initialized if the initialization is executed. However, among the initialized data, the following addresses require manual modification of data after the page F data is initialized.

Modification procedure:

Order	Page	Address	Data		Procedure
			TR401E model	TR402E model	
1	6	00	01		After setting the data, Press the PAUSE button. (Preparation)
2	F	03	24	24	Set each data to each address, and press the PAUSE button.
		04	10	50	
		05	F1	F1	
		06	18	18	
		07	—	06	
		08	14	D4	
		2C	08	08	
		31	—	—	
		32	—	—	
		45	AA	AA	
		46	8C	8C	
		53	AD	AD	
		54	AF	AF	
		5D	—	—	
		5E	24	24	
		60	—	—	
		61	A4	A5	
		63	85	82	
		64	—	36	
		65	—	—	
		67	—	—	
		68	—	—	
		6B	—	—	
		6C	—	—	
		72	—	—	
		74	—	—	
		78	—	—	
		7C	—	—	
		7D	64	64	
		8B	D0	D0	
		E4-EF	00	00	
		F5	A8	A8	
		F6	5E	5E	
		F7	C0	C0	
		87	—	—	
		88	—	—	
		89	—	82	
		8A	—	—	

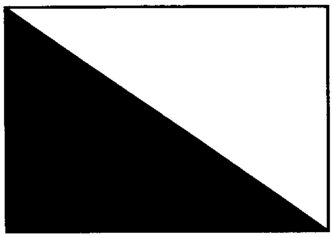
(P6-16)

10. Flange back adjustment ☞ : points added portion.

Purpose: Automatic flange back adjustment of inner focus lens.

Adjustment error: Loss of focus when switched between auto focus and manual focus.

Subject	Chart for flange back adjustment (Placed 2000 ±5 mm in front of the lens with illumination of 300 ±50 lux.)
Measurement Point	Confirm the focus on monitor TV.
Measuring Instrument	Confirm focus on monitor TV
Adjustment Page	F
Adjustment Address	3C 3D 3E 3F 40 41 42 ☜



(Chart for flange back adjustment)
(See Page 6-2)

(P6-21)

15. MAX gain adjustment ☛ : points changed portion.

Purpose: Sets the minimum illumination level.

Adjustment error: Normal video level cannot be obtained at low illumination (dark).

Subject	White pattern standard picture frame
Measurement Point	VIDEO output terminal (Terminated in 75 Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	2C
Specification Value	A =390 ± 10 mV

Note : Confirm that the "Digital Zoom" is turned OFF.
(TR402E MODEL)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	01	19	After setting the data, press the PAUSE button.
☛ 3				Confirm that the value “A” is larger than the specification value.

CCD-TR340E/TR520E
RMT-713

SERVICE MANUAL

AEP Model
CCD-TR340E/TR520E
UK Model
CCD-TR520E

SONY
10x
Handycam Video8
POWER
CAMERA
OFF
PLAYER
AE

PHOTO : CCD-TR340E

Video8
Handycam

B MECHANISM

· Difference of point

CCD-TR340E	10× Zoom MODEL
CCD-TR520E	24× Zoom MODEL (DIGITAL ZOOM) (with STEADY SHOT /WIDE TV)

For MECHANISM ADJUSTMENT, refer to the "8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ " (9-973-801-11).

SPECIFICATIONS

Video Camera Recorder

System

Video recording system
Two rotary heads, Helical scanning, FM system

Audio recording system
Rotary heads, FM system

Video signal
PAL colour, CCIR standards

Usable cassette
8 mm video format cassette (standard 8 mm)

Recording/Playback time
SP mode: 1 hour and 30 minutes (P5-90)
LP mode: 3 hours (P5-90)

Fastforward/rewind time
Approx. 5 min. (P5-90)

Image device
CCD (Charge Coupled Device)

Viewfinder
Electronic viewfinder (Black and white)

Lens
CCD-TR340E: 10x, combined power zoom lens, F1.6 – 2.7
CCD-TR520E: 12x (optical), 24x (digital), combined power zoom lens, F1.8 – 2.7

Focal distance
CCD-TR340E: f = 6.3 – 63 mm (¼ – 2 ½ inches), 45 – 450 mm (1 13/16 – 17 ¾ inches) when converted to a 35 mm still camera
CCD-TR520E: f = 5.4 – 64.8 mm (7/32 – 2 5/8 inches)
47 – 564 mm (1 7/8 – 22 ¼ inches) when converted to a 35 mm still camera

Colour temperature
Auto

Minimum illumination*
CCD-TR340E: 0.6 lx at F 1.6 (Visible minimum low light 0.3 lx)
CCD-TR520E: 4.0 lx at F 1.8

Illumination range
CCD-TR340E: 0.6 to 100,000 lx
CCD-TR520E: 4.0 to 100,000 lx

Recommended illumination
More than 100 lx

* Minimum illumination expresses the light level a camcorder requires to produce a picture. Visible minimum low light expresses the light level to produce a visible signal.

Input and Output connectors

Video output
Phono jack, 1 Vp-p, 75 Ω, unbalanced

Audio output
Phono jack, 327 mV, (at load impedance 47 kΩ), impedance less than 2.2 kΩ

RFU DC OUT
Special minijack, DC 5 V

LANC jack
Stereo-mini-mini-jack (ø 2.5 mm)

MIC jack
Minijack, 0.388 mV, low impedance with 2.5 to 3 V DC, output impedance 6.8 kΩ (ø 3.5 mm)

General

Power requirements
On battery mounting surface 6.0 V (battery pack), 7.5 V (AC power adaptor)

Average power consumption
CCD-TR340E: 3.6 W
CCD-TR520E: 4.3 W

Operating temperature
0°C to 40°C (32°F to 104°F)

Storage temperature
–20°C to +60°C (–4°F to +140°F)

Dimensions
Approx . 115 x 103 x 207 mm (4 5/8 x 4 1/8 x 8 ¼ inches) (w/h/d)

Mass
Excluding the battery pack, lithium battery, cassette and shoulder strap
CCD-TR340E:
Approx. 720 g (1 lb 9 oz)
CCD-TR520E:
Approx. 740 g (1 lb 10 oz)
Including the battery pack NP-33, lithium battery CR2025, cassette P5-90 and shoulder strap
CCD-TR340E:
Approx. 940 g (2 lb 1 oz)
CCD-TR520E:
Approx. 960 g (2 lb 1 oz)

Microphone
Electret condenser microphone
Monaural type

Supplied accessories
See page 2.

— Continued on next page —

MICROFILM

8 VIDEO CAMERA RECORDER

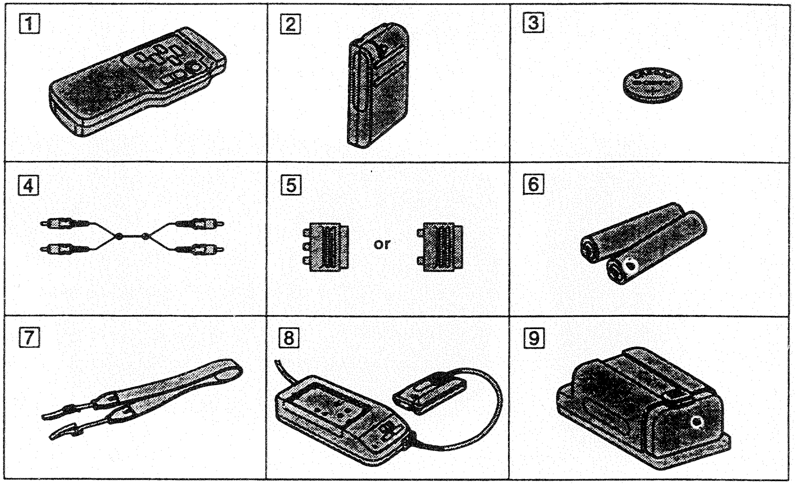
SONY®

AC power adaptor

Power requirements
110 – 240 V AC, 50/60Hz
Power consumption
AC-V15 : 18W
AC-V16: 20 W
AC-V16A: 22 W
Output voltage
DC OUT in operation mode
AC-V15 : 7.5V, 1.6A
AC-V16/V16A: 7.5 V, 1.8 A
Battery charge terminal
10 V, 1.1 A in charge mode
Application
Sony battery packs NP-33 (supplied), NP-55H, NP-65, NP-66, NP-66H, NP-67, NP-68, NP-77H, NP-77HD, NP-90/90D, NP-98/98D
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to +60°C (–4°F to +140°F)
Dimensions
Approx. 166 x 43 x 75 mm
(6 $^{5}/_{8}$ x 1 $^{11}/_{16}$ x 3 inches)
(w/h/d)
including projecting parts and controls
Mass
AC-V15/V16: Approx. 420 g (15 oz)
AC-V16A: Approx. 450 g (16 oz)

Checking Supplied Accessories

Check that the following accessories are supplied with your camcorder.



1 **Wireless Remote Commander (1)**
2 **NP-33 Battery Pack (1)**
3 **CR2025 Lithium Battery (1)**
Already installed in the camcorder.
4 **A/V connecting cable (1)**
5 **21-pin adaptor (1)**
6 **R6 (size AA) battery for Remote Commander (2)**
7 **Shoulder strap (1)**
8 **AC-V15/V16/V16A AC power adaptor (1)**
AC-V16 and AC-V16A are not available in the United Kingdom.
9 **Battery case (1)**

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

· Difference of point

CCD-TR340E	10× Zoom MODEL
CCD-TR520E	24× Zoom MODEL (DIGITAL ZOOM) (with STEADY SHOT /WIDE TV)

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replace-ment.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

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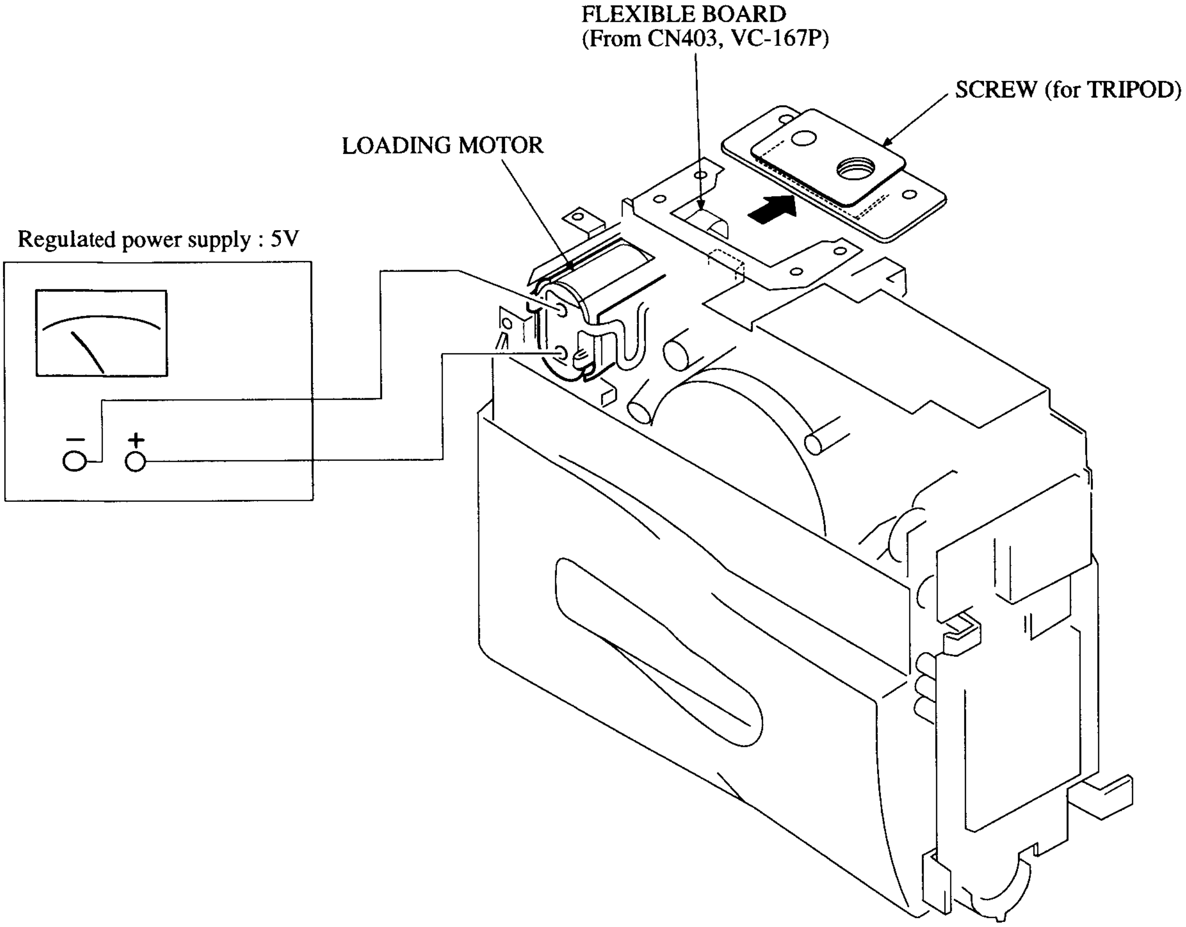
※ The color reproduction frame is shown after the page of ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS.

SERVICE NOTE

· How to remove cassette if the main power cannot be switched ON. (Forced EJECT)

NOTE : To eject a cassette from the camcorder without turning on the main power, firstly remove the SCREW (for TRIPOD), then remove the FLEXIBLE BOARD as shown, and finally connect the regulated power supply ; +5V to the loading motor, this is to protect the main circuit from damage.


FLEXIBLE BOARD
(From CN403, VC-167P)
SCREW (for TRIPOD)
LOADING MOTOR
Regulated power supply : 5V
–
+

This section is extracted from instruction manual.

Checking Your Model Number

The instructions in this manual are for two models listed below. Before you start reading and operating, check your model number by looking at the bottom of your camcorder. The CCD-TR520E is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, "For CCD-TR520E only".
As you read through this manual, buttons and settings on the camcorder are shown in capital letters.
e.g. Set the POWER switch to CAMERA.

Types of Differences

Comprobación del número de su modelo

Las instrucciones de este manual abarcan los dos modelos de la tabla siguiente. Antes de leer el manual y utilizar la videocámara, vea el nombre de su modelo en la base de la misma. Las ilustraciones de este manual son las del modelo CCD-TR520E. En caso contrario, el nombre de modelo se indicará en la ilustración. Cualquier diferencia en cuanto a la operación, se indicará claramente en el texto, por ejemplo, "Para la CCD-TR520E solamente".
Las teclas y ajustes de la videocámara aparecen en mayúsculas en todo el manual.
Ej. Ponga el selector POWER en CAMERA.

Diferencias en tipo

Model Modelo	Zoom Zoom	Wide mode Modo de pantalla amplia	Steady Shot Videofilmación estable
CCD-TR340E	10x		
CCD-TR520E	12x ←→ 24x	●	●

Model Modelo	Display window Visualizador
CCD-TR340E	
CCD-TR520E	●

Charging and Installing the Battery Pack

Before using your camcorder, you first need to charge and install the battery pack. To charge the battery pack, use the supplied AC power adaptor.

Charging the Battery Pack

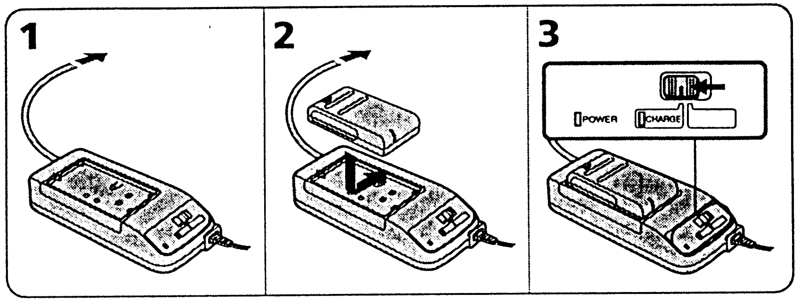
Charge the battery pack on a flat place without vibration.
(1) Connect the AC power adaptor to the mains.
(2) Align the right side of the battery pack with the line on the AC power adaptor, then slide the battery pack in the direction of the arrow.
(3) Set the selector to CHARGE. The CHARGE lamp (orange) lights up. Charging begins.
When charging is completed, the CHARGE lamp goes out. Unplug the unit from the mains, and then remove the battery pack and install it on the camcorder.

Carga y fijación de la batería

Antes de utilizar la videocámara, primero tendrá que cargar y colocar la batería. Para cargar la batería, utilice el adaptador de alimentación de CA suministrado.

Carga de la batería

Cargue la batería en un lugar nivelado y exento de vibraciones.
(1) Conecte el adaptador de alimentación de CA a una toma de la red.
(2) Alinee el lado derecho de la batería con la línea del adaptador de alimentación de CA, y después deslice la batería en el sentido de la flecha.
(3) Ponga el selector en CHARGE. La lámpara CHARGE (anaranjada) se encenderá y se iniciará la carga.
Cuando finalice la carga, la lámpara CHARGE se apagará. Desconecte la unidad de la toma de la red, y después quite la batería y fíjela a la videocámara.



Charging Time

Battery pack	Charging time*
NP-33 (supplied)	60
NP-55H	85
NP-65/67	105
NP-66	95
NP-66H/68	125
NP-77H/77HD	170
NP-90/90D/98/98D	215

* Approximate minutes to charge an empty battery pack using the supplied AC power adaptor (Lower temperatures require a longer charging time.)

Tiempo de carga

Batería	Tiempo de carga*
NP-33 (suministrada)	60
NP-55H	85
NP-65/67	105
NP-66	95
NP-66H/68	125
NP-77H/77HD	170
NP-90/90D/98/98D	215

* Minutos aproximados para cargar una batería agotada utilizando el adaptador de alimentación de CA suministrado. (A bajas temperaturas, el tiempo de carga será más largo.)

Charging and Installing the Battery Pack

Carga y fijación de la batería

Battery Life

CCD-TR340E

Battery pack	Typical recording time**	Continuous recording time***
NP-33 (supplied)	50	90
NP-55H	60	110
NP-65/67	85	155
NP-66	85	150
NP-66H/68	105	180
NP-77H/77HD	135	235
NP-90/90D/98/98D	175	305

CCD-TR520E

Battery pack	Typical recording time**	Continuous recording time***
NP-33 (supplied)	45	80
NP-55H	55	100
NP-65/67	75	140
NP-66	70	125
NP-66H/68	90	160
NP-77H/77HD	120	210
NP-90/90D/98/98D	155	270

** Approximate minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

*** Approximate continuous recording time indoors.

> **Important!**
>
> **Use the battery completely before re-charging!**
>
> Before you recharge the battery, make sure the battery has been used up (discharged) completely.
> Repeated charging while some capacity remains causes a lowering of battery capacity. However, the original battery capacity can be recovered if you use the battery completely and charge it fully again.
>
> To use up the battery, remove the cassette and turn the POWER switch to CAMERA with the battery attached, and leave the camcorder until the ▭ indicator and the red lamp flash rapidly in the viewfinder.

Duración de la batería

CCD-TR340E

Batería	Tiempo de videofilmación típica**	Tiempo de videofilmación continua***
NP-33 (suministrada)	50	90
NP-55H	60	110
NP-65/67	85	155
NP-66	85	150
NP-66H/68	105	180
NP-77H/77HD	135	235
NP-90/90D/98/98D	175	305

CCD-TR520E

Batería	Tiempo de videofilmación típica**	Tiempo de videofilmación continua***
NP-33 (suministrada)	45	80
NP-55H	55	100
NP-65/67	75	140
NP-66	70	125
NP-66H/68	90	160
NP-77H/77HD	120	210
NP-90/90D/98/98D	155	270

** Minutos aproximados cuando videofilme repitiendo el inicio/la parada de la grabación, el zoom y la conexión/desconexión de la alimentación. Es posible que la duración de la batería actual sea más corta.

*** Tiempo aproximado de videofilmación continua en interiores.

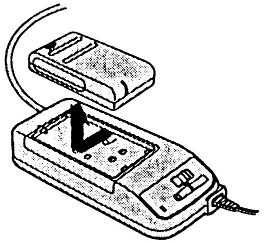
> **¡Importante!**
>
> **¡Utilice completamente la batería antes de recargarla!**
>
> Antes de recargar la batería, asegúrese de que la batería esté completamente agotada (descargada).
> La carga repetida sin la batería completamente descargada hará que la capacidad de la misma disminuya. Sin embargo, será posible recuperar la capacidad original de la batería si la vuelve a utilizar y cargar por completo.
>
> Para utilizar la batería completamente, extraiga el videocassette, deslice el selector POWER hasta CAMERA, y con la batería fijada deje la videocámara hasta que en el visor parpadeen rápidamente el indicador ▭ y la lámpara roja.

To Remove the Battery Pack

Slide the battery pack in the direction of the arrow.

Para quitar la batería

Deslícela en el sentido de la flecha.



Notes on charging the battery pack

- The POWER lamp will remain lit for a while even if the battery pack is removed and the mains lead is unplugged after charging the battery pack. This is normal.
- If the POWER lamp does not light, set the selector to VTR (DC OUT) and disconnect the mains lead. After about one minute, reconnect the mains lead cord and set the selector to CHARGE again.
- You cannot operate the camcorder using the AC power adaptor while charging the battery pack.

Notas sobre la carga de la batería

- Es normal que la lámpara POWER permanezca encendida durante un momento después de que haya quitado la batería y desconectado el cable de alimentación de CA cuando finalice la carga.
- Si la lámpara POWER no se enciende, ponga el selector en VTR (DC OUT) y desconecte el cable de alimentación de CA. Después de aproximadamente un minuto, vuelva a conectar el cable y a poner el selector en CHARGE.
- No podrá operar la videocámara empleando el adaptador de alimentación de CA mientras esté cargando la batería.

Charging and Installing the Battery Pack

Carga y fijación de la batería

Installing the Battery Pack

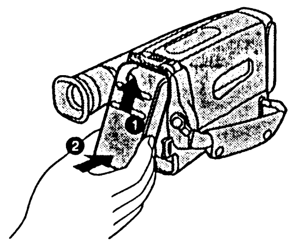
(1) Insert the top of the battery pack into the top of the battery mounting surface.

(2) Push the battery pack so that it attaches firmly.

Fijación de la batería

(1) Inserte la cabeza de la batería en la parte superior de la superficie de montaje.

(2) Empuje la batería de forma que ésta quede firmemente fijada.

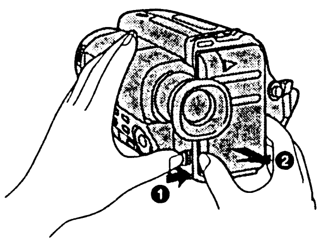


To Remove the Battery Pack

Slide BATT, and then pull the lower part of the battery pack.

Para quitar la batería

Deslice BATT, y después tire de la parte inferior de la batería.



Inserting a Cassette

Inserción de un videocassette

Make sure that a power source is installed.

(1) While pressing the small blue button, slide EJECT in the direction of the arrow. The cassette compartment automatically opens.

(2) Insert a cassette (not supplied) with the window facing out.

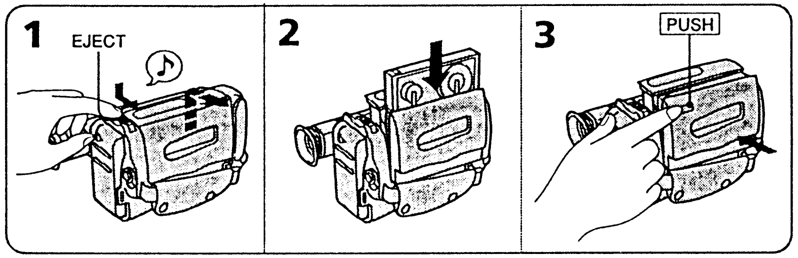
(3) Press the PUSH mark on the cassette compartment to close it. The cassette compartment automatically closes.

Asegúrese de que haya una fuente de alimentación conectada a la videocámara.

(1) Manteniendo presionado el pequeño botón azul, deslice EJECT en el sentido de la flecha. El compartimiento del videocassette se abrirá automáticamente.

(2) Inserte un videocassette (no suministrado) con la ventanilla hacia afuera.

(3) Presione la marca PUSH en el compartimiento del videocassette para cerrarlo. El compartimiento se cerrará automáticamente.



To Eject the Cassette

While pressing the small blue button, slide EJECT in the direction of the arrow.

To Prevent Accidental Erasure

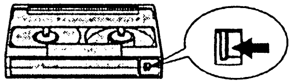
Slide the tab on the cassette to expose the red mark. If you insert the cassette with the red mark exposed and close the cassette compartment, the beeps sound for a while. If you try to record with the red mark exposed, the 📼 and ⏏ indicators flash in the viewfinder, and you cannot record. To re-record on this tape, slide the tab back out covering the red mark.

Para expulsar el videocassette

Manteniendo presionado el pequeño botón azul, deslice EJECT en el sentido de la flecha.

Para prevenir el borrado accidental

Deslice la lengüeta del videocassette de forma que la marca roja quede al descubierto.
Si inserta un videocassette con la marca roja al descubierto y cierra el compartimiento del videocassette, sonará un pitido durante un momento. Si intenta grabar con la marca roja al descubierto, en el visor parpadearán los indicadores 📼 y ⏏, y no podrá grabar. Para volver a grabar en esta cinta, deslice la lengüeta de forma que se cubra la marca roja.



Camera Recording

Make sure that a power source and a cassette is inserted.
When you use the camcorder for the first time, power on it and reset the date and time to your time (p. 40) before you start recording. When you reset the date and time, the date is automatically recorded for 10 seconds after you start recording (AUTO DATE feature). This feature works only once a day.
Before you record one-time events, you may want to make a trial recording to make sure that you are using the camcorder correctly.

(1) While pressing the small green button on the POWER switch, slide it to CAMERA.
(2) Slide START/STOP MODE to ⊻ .
(3) Turn STANDBY up. The "STBY" indicator appears in the viewfinder.
(4) Press START/STOP (red button). The camcorder starts recording and the "STBY" indicator changes to the "REC" indicator.

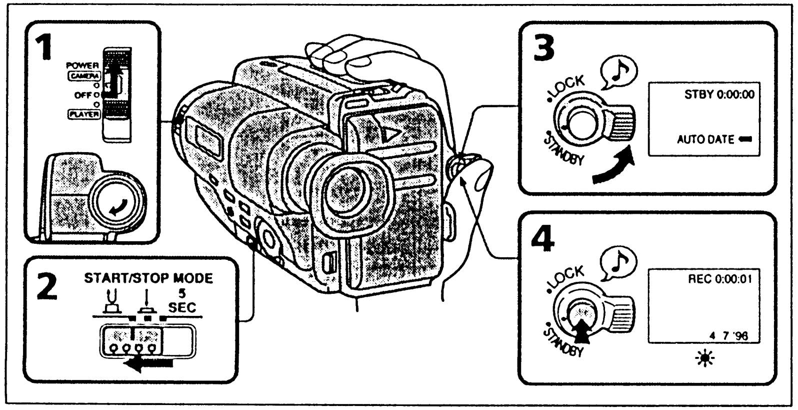
You can also select Recording mode, SP (standard play) mode or LP (long play) mode. Set REC MODE (p. 36) according to the length of your planned recording before you start.

Videofilmación

Asegúrese de que haya una fuente de alimentación conectada y un videocassette insertado.
Cuando utilice la videocámara por primera vez, conecte la alimentación y reajuste la fecha y la hora actual (pág. 40). Cuando las reajuste, la fecha se grabará automáticamente durante 10 segundos a partir del inicio de la videofilmación [función AUTO DATE (grabación automática de la fecha)]. Esta función sólo trabajará una vez al día.
Antes de realizar videofilmaciones irrepetibles, se recomienda realizar una filmación de prueba a fin de comprobar si la videocámara funciona correctamente.

(1) Manteniendo presionado el pequeño botón verde del selector POWER, deslícelo hasta CAMERA.
(2) Deslice START/STOP MODE hasta ⊻ .
(3) Gire STANDBY hacia arriba. En el visor aparecerá el indicador "STBY".
(4) Presione START/STOP (tecla roja). La videocámara comenzará a grabar y el indicador "STBY" cambiará a "REC".

Usted también podrá seleccionar el modo de grabación, modo SP (reproducción normal) o LP (reproducción larga). Ajuste REC MODE (pág. 36) de acuerdo con la duración de la videofilmación planeada antes de comenzar.



To Stop Recording Momentarily [a]

Press the START/STOP button again. The "REC" indicator in the viewfinder changes to the "STBY" indicator (**Standby mode**).

To Finish Recording [b]

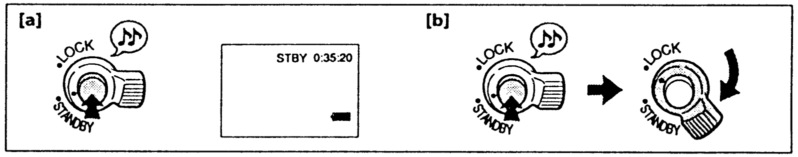
Press the START/STOP button. Turn the STANDBY switch down, and set the POWER switch to OFF.
Then, eject the cassette (p. 11) and remove the battery pack (p. 10).

Para detener momentáneamente la grabación [a]

Presione otra vez la tecla START/STOP. El indicador "REC" cambiará al indicador "STBY" (**Modo de espera**).

Para finalizar la grabación [b]

Presione la tecla START/STOP, gire el interruptor STANDBY hacia abajo y ponga el selector POWER en OFF. Después extraiga el videocassette (pág. 11) y quite la batería (pág. 10).



Note on Standby mode
If you leave the camcorder for 5 minutes or more with a cassette inserted in Standby mode, the camcorder goes off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, turn the STANDBY switch down once and turn it up again. To start recording, press the START/STOP button.

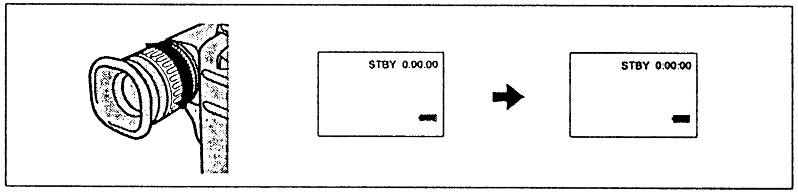
To Focus the Viewfinder Lens

If the viewfinder is not in focus at all or when you use the camcorder after someone else has used it, focus the viewfinder lens. Move the viewfinder lens adjustment ring so that the indicators in the viewfinder come into sharp focus.

Nota sobre el modo de espera
Si deja la videocámara en el modo de espera durante 5 minutos o más con el videocassette insertado, la videocámara se apagará automáticamente. Esto evitará que la batería y el videocassette se desgasten. Para restablecer el modo de espera, gire una vez el interruptor STANDBY hacia abajo y después otra vez hacia arriba. Para comenzar a grabar, presione la tecla START/STOP.

Para enfocar la lente del visor

Cuando el visor no esté enfocado en absoluto, o cuando vaya a utilizar la videocámara después de haberla empleado otra persona, enfoque la lente del visor. Mueva el anillo de ajuste de la lente del visor de forma que los indicadores del visor queden nítidamente enfocados.



Note on the indicators in the viewfinder

The indicators appear in CAMERA mode only. They do not appear in PLAYER mode.

Recording with the START/STOP button depressed

You can also make recording while pressing down the START/STOP button. To make the START/STOP button work this way, set the START/STOP MODE switch to ⊥ . **[c]**

Shooting scenery in several short takes

You can automatically make recording for about 5 seconds with the 5 SEC (p. 32). To make the START/STOP button work this way, set the START/STOP MODE switch to 5 SEC. **[d]**

Nota sobre los indicadores en el visor

Los indicadores aparecerán solamente en el modo CAMERA. Éstos no aparecerán en el modo PLAYER.

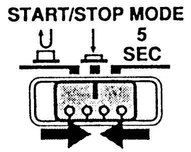
Grabación con la tecla START/STOP presionada

Usted también podrá grabar presionando la tecla START/STOP. Para hacer funcionar la tecla START/STOP de esta manera, ponga el selector START/STOP MODE en ⊥ . **[c]**

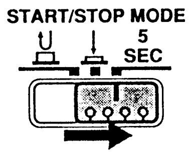
Videofilmación de escenas en varias tomas cortas

Utilizando 5 SEC (pág. 32), podrá videofilmar automáticamente durante unos 5 segundos. Para que la tecla START/STOP funcione de esta manera, ponga el selector START/STOP MODE en 5 SEC. **[d]**

[c]



[d]



Note on recording

When you record from the beginning of the tape, run the tape for about 15 seconds before actual recording. This prevents the camcorder from missing any start-up scenes when you play back the tape.

Notes on recording mode

- This camcorder records and plays back in SP (standard play) mode and in LP (long play) mode.
  The playback quality in LP mode, however, will not be as good as that in SP mode.
- When a tape recorded on this camcorder in LP mode is played back on other types of 8mm camcorders or VCRs, the playback quality may not be as good as that on this camcorder.

Nota sobre la grabación

Cuando grabe desde el comienzo de la cinta, haga que ésta avance unos 15 segundos antes de comenzar la videofilmación actual. Esto evitará que se pierdan las escenas iniciales cuando se reproduzca la cinta.

Notas sobre el modo de grabación

- Esta videocámara graba y reproduce en los modos SP (reproducción estándar) y LP (reproducción larga). Sin embargo, la calidad de las imágenes reproducidas en el modo LP no será tan buena como en el modo SP.
- Cuando reproduzca una cinta grabada en esta videocámara en el modo LP en una videocámara de 8 mm de otro tipo o una videograbadora, es posible que la calidad de las imágenes no sea tan buena como en esta videocámara.

Notes on the tape counter

- The tape counter indicates the recording time. Use it as a guide. There will be a time lag of several seconds from the actual time. To set the counter to zero, press the COUNTER RESET button.
- If the tape is recorded in SP and LP modes mixed, the tape counter shows incorrect recording time. When you intend to edit the tape using the tape counter, record in same (SP or LP) mode.

Note on beep sound

As indicated with ♪ in the illustrations, a beep sounds when you turn the power on or when you start recording and two beeps sound when you stop recording, confirming the operation. Several beeps also sound as a warning-of any unusual condition of the camcorder (p. 69). Note that the beep sound is not recorded on the tape. If you do not want to hear the beep sound, set BEEP to "OFF" (p. 36).

Note on the AUTO DATE feature

The clock is set to London for the United Kingdom models and Paris for other European models at the factory. You can reset the clock (p. 40).

The AUTO DATE feature shows the date automatically once a day. However, the date may automatically appear more than once a day when:

- you reset the date and time.
- you eject and insert the tape again.
- you stop recording within 10 seconds.

When moving from indoors to outdoors (or vice versa)

Turn the STANDBY switch up and point the camcorder at a white object for about 15 seconds so that the white balance is properly adjusted.

Notas sobre el contador de la cinta

- El contador de la cinta indicará el tiempo de grabación. Empléelo como una guía. Es posible que exista una diferencia de varios segundos del tiempo real. Para ajustar el contador a cero, presione la tecla COUNTER RESET.
- Si la cinta se ha grabado en los modos SP y LP mezclados, el contador de la cinta indicará un tiempo de videofilmación incorrecto. Cuando intente editar la cinta utilizando el contador de la cinta, grabe en el mismo modo (SP o LP).

Nota sobre el pitido

Como se indica con la marca ♪ en las ilustraciones, cuando conecte la alimentación o cuando comience la videofilmación, sonará un pitido, y cuando pare la videofilmación sonarán dos pitidos para confirmar la operación. También sonarán varios pitidos como advertencia de una condición anormal de la videocámara (pág. 69). Tenga en cuenta que los pitidos no se grabarán en la cinta. Si no desea oír los pitidos, ponga BEEP en "OFF" (pág. 36).

Nota sobre la función AUTO DATE

El reloj está ajustado en fábrica a la hora de Londres en el modelo para el Reino Unido y a la de París en otros modelos para Europa. El reloj puede reajustarse (pág. 40).

La función AUTO DATE se activará una vez al día. Sin embargo, la fecha aparecerá automáticamente más de una vez al día cuando:

- reajuste la fecha y la hora.
- extraiga y vuelva a insertar el videocassette.
- pare la grabación antes de 10 segundos.

Cuando se mueva del interior al exterior (o viceversa)

Gire el interruptor STANDBY hacia arriba y apunte con la videocámara hacia un objeto blanco durante unos 15 segundos de forma que el equilibrio del blanco se ajuste apropiadamente.

Using the Zoom Feature

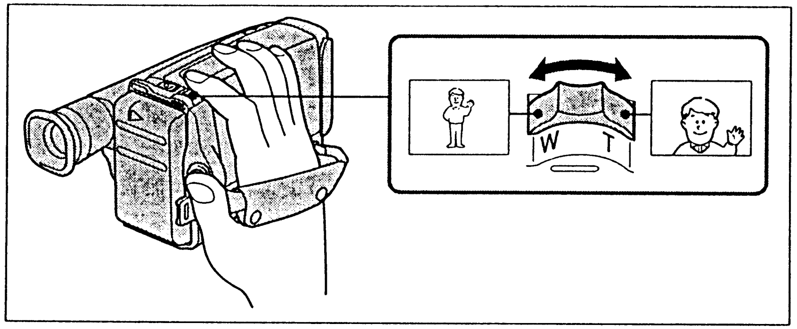
Zooming is a recording technique that lets you change the size of the subject in the scene. For more professional-looking recordings, use the zoom sparingly.

T side: for telephoto (subject appears closer)
W side: for wide-angle (subject appears farther away)

Utilización del zoom

El zoom es una técnica de videofilmación que le permite cambiar el tamaño del motivo en la escena. Para filmaciones de aspecto más profesional, utilice el zoom en forma limitada.

Lado T: para telefoto (el motivo se ve cercano)
Lado W: para gran angular (el motivo se ve lejano)



Zooming Speed

Turn the power zoom lever fully for a high-speed zoom. Turn it lightly for a relatively slow zoom.

When you shoot a subject using a telephoto zoom

If you cannot get a sharp focus while in extreme telephoto zoom, turn the power zoom lever towards the W side until the focus is sharp.
You can shoot a subject that is at least about 80 cm (about 2.6 feet) away from the lens surface in the telephoto position, or about 1 cm (about 1/2 inch) in the wide-angle position.

Velocidad del zoom

Gire completamente la palanca del zoom motorizado para efectuar el zoom a gran velocidad y gírela un poco para hacerlo a una velocidad relativamente lenta.

Cuando videofilme un motivo empleando el acercamiento con el zoom

Si no puede enfocar nítidamente cuando videofilme con el zoom en el extremo del telefoto, gire la palanca del zoom motorizado hacia el lado W hasta enfocar nítidamente.
Usted podrá videofilmar un motivo que esté por lo menos a unos 80 cm de la superficie del objetivo en la posición de telefoto, y a aproximadamente 1 cm en la de gran angular.

Notes on Digital Zoom –CCD-TR520E only

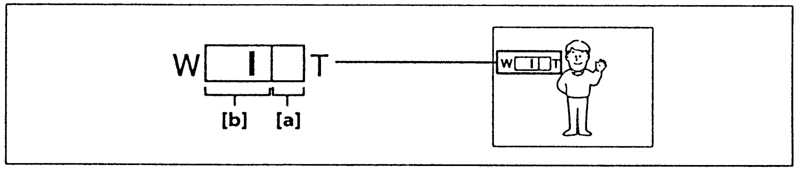
You can select 12 x or 24 x of zooming.

- More than 12 x zoom is performed digitally, and the picture quality deteriorates as you go toward the T side. If you do not want to use the digital zoom set the ZOOM function to x12 (p. 36).
- The right side **[a]** in the power zoom indicator shows the digital zooming zone, and the left side **[b]** shows the optical zooming zone. If you set the ZOOM function to x12, the **[a]** zone disappears.

Notas sobre el zoom digital –CCD-TR520E solamente

Usted podrá elegir entre el zoom de 12 y 24 aumentos.

- El zoom de más de 12 aumentos se realizará digitalmente, y la calidad de la imagen se deteriorá a medida que se acerque hacia el lado T. Si no desea utilizar el zoom digital, ajuste la función ZOOM a x12 (pág. 36).
- La parte derecha **[a]** del indicador del zoom motorizado muestra la zona del zoom digital, y la parte izquierda **[b]** muestra la zona del zoom óptico. Si ajusta la función ZOOM a x12, la zona **[a]** desaparecerá.

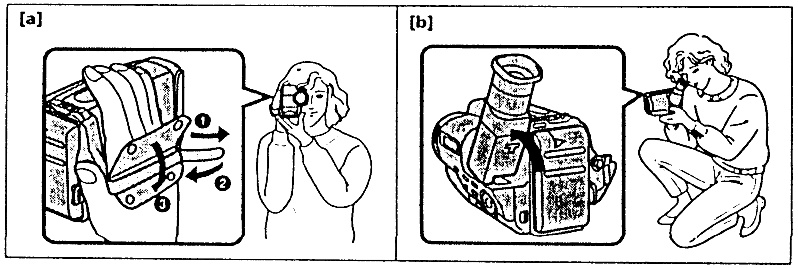


Hints for Better Shooting

For hand-held shots, you'll get better results holding the camcorder according to the following suggestions:

Consejos para videofilmar mejor

Para videofilmar con la videocámara en las manos, podrá obtener mejores imágenes sujetándola como se indica a continuación:



Hints for Better Shooting

- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb. **[a]** (p. 17)
- Place your right elbow against your side.
- Place your left hand under the camcorder to support it. Do not cover the microphone with your fingers.
- Place your eye firmly against the viewfinder eyecup.
- Use the viewfinder frame as a guide to determine the horizontal plane.
- You can also record in a low position to get an interesting recording angle. Turn the viewfinder up for recording from a low position. **[b]** (p. 17)

Place the camcorder on a flat surface or use a tripod

Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder (p. 62).
When attaching a non-Sony tripod, make sure the tripod screw is shorter than 6.5 mm (9/32 in.). Otherwise, the screw may damage the inner parts of the camcorder.

Cautions on the viewfinder

- Do not pick up the camcorder by the viewfinder. **[c]**
- Do not place the camcorder so as to point the viewfinder toward the sun. The inside of the viewfinder may be damaged. Be careful when placing the camcorder under sunlight or by a window. **[d]**

Consejos para videofilmar mejor

- Sujete la videocámara firmemente y asegúrela con la correa de la empuñadura de modo que pueda manipular fácilmente los controles con el pulgar. **[a]** (pág. 17)
- Coloque su codo derecho firmemente contra su costado.
- Coloque su mano izquierda debajo de la videocámara para sostenerla. No cubra el micrófono con sus dedos.
- Apoye el ocular del visor de la videocámara firmemente contra su ojo.
- Para determinar el plano horizontal, utilice el cuadro del visor como referencia.
- Para obtener un ángulo de videofilmación interesante, usted también podrá grabar desde una posición baja. Para grabar desde una posición baja, gire el visor hacia arriba. **[b]** (pág. 17)

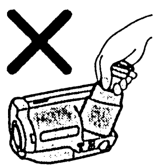
Coloque la videocámara en una superficie plana o utilice un trípode

Pruebe colocando la videocámara sobre una mesa u otra superficie plana de altura adecuada. Si posee un trípode para cámara fotográfica, podrá emplearlo también con esta videocámara (pág. 62).
Cuando utilice un trípode que no sea Sony, asegúrese de que la longitud del tornillo del trípode sea inferior a 6,5 mm. De lo contrario, el tornillo podría dañar las partes internas de la videocámara.

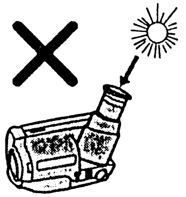
Precauciones sobre el visor

- No sujete la videocámara por el visor. **[c]**
- No deje la videocámara con el visor apuntando hacia el sol. El interior del visor podría dañarse. Tenga cuidado al dejar la videocámara bajo el sol o cerca de una ventana. **[d]**

[c]



[d]



Checking the Recorded Picture

Using EDITSEARCH, you can review the last recorded scene or check the recorded picture in the viewfinder.

(1) While pressing the small green button on the POWER switch, slide it to CAMERA.
(2) Turn STANDBY up.
(3) Press EDITSEARCH. Press the – (⊜) side momentarily, the last few seconds of the recorded portion plays back **(Rec Review)**.

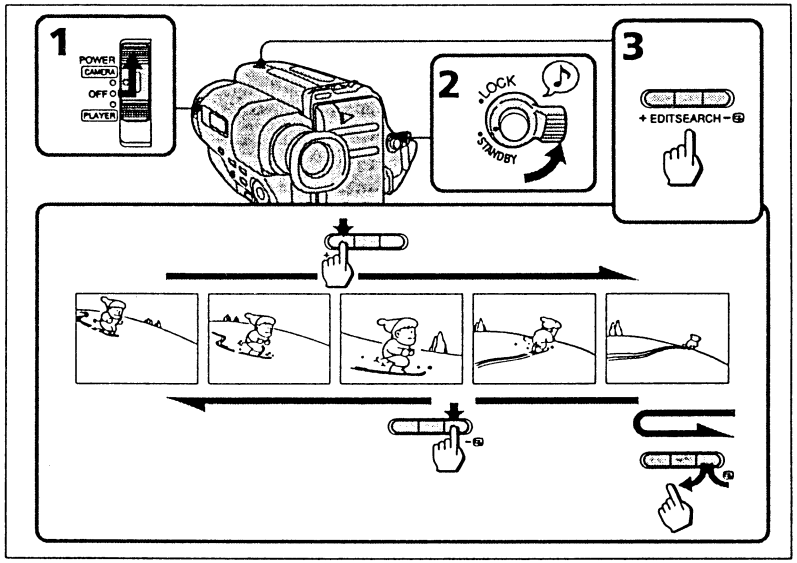
Hold down the – side of EDITSEARCH until the camcorder goes back to the scene you want. The last recorded portion is played back. To go forward, hold down the + side **(Editsearch)**.

Verificación de las imágenes grabadas

Utilizando EDITSEARCH, usted podrá revisar la última escena grabada o comprobar la imagen grabada en el visor.

(1) Manteniendo presionado el pequeño botón verde del selector POWER, deslícelo hasta CAMERA.
(2) Gire STANDBY hacia arriba.
(3) Presione EDITSEARCH. Presione momentáneamente el lado – (⊜). Se reproducirán los últimos segundos de la parte videofilmada **(Revisión de la grabación)**.

Mantenga presionado el lado – de EDITSEARCH hasta que la cinta retroceda hasta la escena deseada. La última parte videofilmada se reproducirá. Para avanzar la cinta, mantenga presionado el lado + **(Búsqueda para la edición)**.



To Begin Re-recording

Press the START/STOP button. Re-recording begins from the point you released the EDITSEARCH button. Provided you do not eject the cassette, the transition between the last scene you recorded and the next scene you record will be smooth.

Para reanudar la grabación

Presione la tecla START/STOP. La grabación se iniciará desde el punto en el que soltó la tecla EDITSEARCH. Mientras no extraiga el videocassette, la transición entre la última escena grabada y la siguiente será uniforme.

Connections for Playback

Conexiones para la reproducción

You can use this camcorder as a VCR by connecting it to your TV for playback. It is recommended to use the mains as the power source (p. 25).

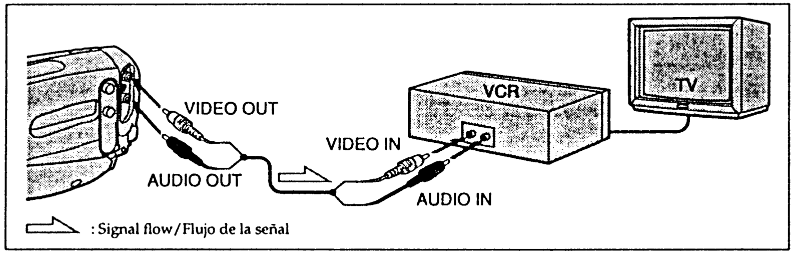
Para la reproducción, usted podrá utilizar esta videocámara para que funcione como videograbadora conectándola a su televisor. Se recomienda utilizar la corriente de la red como fuente de alimentación (pág. 25).

If a VCR is connected to a TV

Open the jack cover and connect the camcorder to LINE IN on the VCR by using the supplied A/V connecting cable. Set the input selector on the VCR to LINE. Set the TV/VCR selector to VCR on the TV.

Cuando una videograbadora esté conectada a un televisor

Abra la cubierta de las tomas y conecte la videocámara a LINE IN de la videograbadora empleando el cable conector de audio/vídeo suministrado. Ponga el selector de entrada de la videograbadora en LINE, y el selector TV/VCR del televisor en VCR.



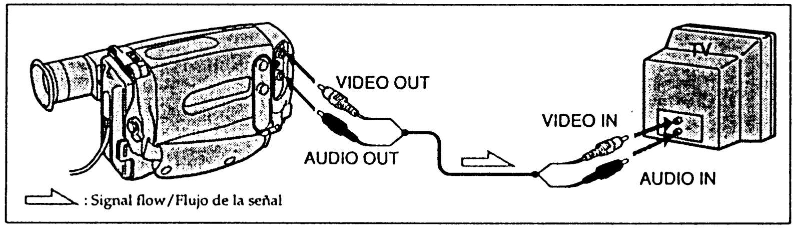
: Signal flow/Flujo de la señal

Connecting Directly to a TV

Open the jack cover and connect the camcorder to your TV by using the supplied A/V connecting cable. Set the TV/VCR selector to VCR on the TV.

Conexión directa a un televisor

Abra la cubierta de las tomas y conecte la videocámara al televisor empleando el cable conector de audio/vídeo suministrado. Ponga el selector TV/VCR del televisor en VCR.



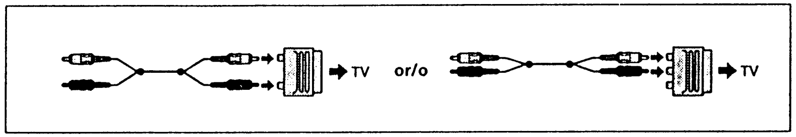
: Signal flow/Flujo de la señal

If Your TV/VCR has a 21-pin Connector (EUROCONNECTOR)

Use the supplied 21-pin adaptor.

Si su televisor o videograbadora posee conector de 21 contactos (EUROCONNECTOR)

Utilice el adaptador de 21 contactos suministrado.



To connect a TV or a VCR without Video/Audio input jacks
Use an RFU adaptor (not supplied).

Para conectar a un televior o una videograbadora sin tomas de entrada de audio/vídeo
Utilice un adaptador de RF (no suministrado).

Playing Back a Tape

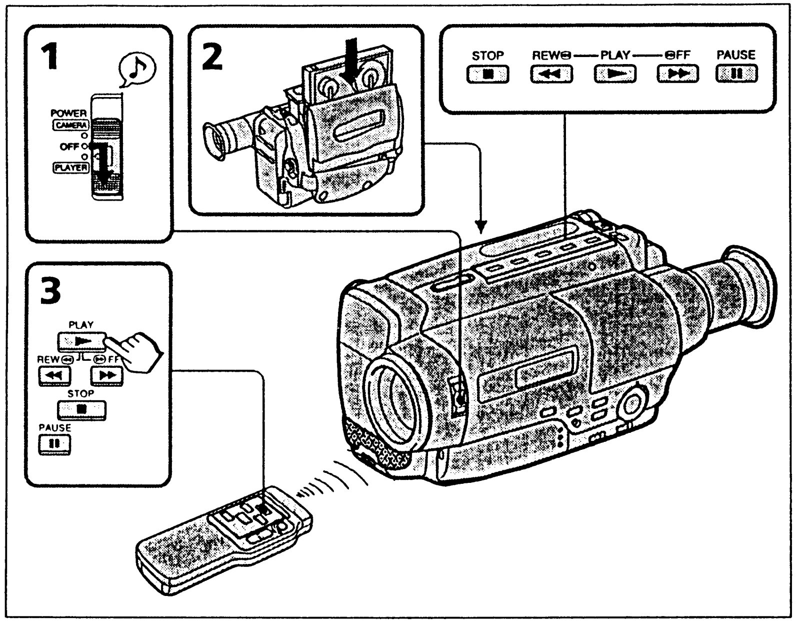
Reproducción de cintas

You can monitor the playback picture in the viewfinder. You can also monitor on the TV screen, after connecting the camcorder to the TV/ VCR (p. 20).
You can control playback using the supplied Remote Commander.

(1) While pressing the small green button on the POWER switch, slide it to PLAYER.
The tape transport buttons light up (CCD-TR520E only).
(2) Insert the recorded tape with the window facing out.
(3) Press ▶. Playback starts.

Usted podrá ver las imágenes reproducidas en el visor. También en la pantalla de un televisor si conecta la videocámara a un televisor o una videograbadora (pág. 20).
También podrá controlar la reproducción con el telemando suministrado.

(1) Manteniendo presionado el pequeño botón verde del selector POWER, deslícelo hasta PLAYER.
Las teclas de transporte de la cinta se encenderán (CCD-TR520E solamente).
(2) Inserte un videocassette grabado con la ventanilla hacia afuera.
(3) Presione ▶. Se iniciará la reproducción.



To stop playback, press ■.
To rewind the tape, press ◀◀.
To fast-forward the tape, press ▶▶.

Para parar la reproducción, presione ■.
Para rebobinar la cinta, presione ◀◀.
Para hacer que la cinta avance rápidamente, presione ▶▶.

Various Playback Modes

To view a still picture (playback pause)
Press ❚❚ during playback. To resume playback, press ❚❚ or ▶.

To locate a scene (Picture Search)
Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

To monitor the high-speed picture during fastforward or rewind (Skip Scan)
Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume normal playback, press ▶.

Notes on playback
- Streaks appear and the sound is muted in the various playback modes.
- When still picture mode lasts for 5 minutes or more, the camcorder automatically enters stop mode.

Diversos modos de reproducción

Para ver una imagen fija (reproducción en pausa)
Presione ❚❚ durante la reproducción. Para reanudar la reproducción, presione ❚❚ o ▶.

Para localizar una escena (Búsqueda de imágenes)
Mantenga presionada ◀◀ o ▶▶ durante la reproducción. Para reanudar la reproducción normal, suelte la tecla.

Para ver las imágenes a gran velocidad durante el avance rápido o el rebobinado (Exploración con salto)
Mantenga presionada ◀◀ durante el rebobinado o ▶▶ durante el avance de la cinta. Para reanudar la reproducción normal, presione ▶.

Notas sobre la reproducción
- En los diversos modos de reproducción aparecerán franjas y el sonido se silenciará.
- Cuando el modo de imagen fija dure 5 minutos o más, la videocámara pasará automáticamente al modo de parada.

1-9

Advanced Operations

Using Alternative Power Sources

You can choose any of the following power sources for your camcorder: battery pack (p. 7), the mains, alkaline battery, and 12/24 V car battery. Choose the appropriate power source depending on where you want to use your camcorder.

Place	Power source	Accessory to be used
Indoors	Mains	Supplied AC power adaptor
Outdoor	Battery pack	Battery pack NP-33 (supplied), NP-55H, NP-65/67, NP-66, NP-66H/68, NP-77H/77HD, NP-90/90D, NP-98/98D
	LR6 (size AA) Sony alkaline battery	Battery case
In the car	12 V or 24 V car battery	DC pack DCP-77

This mark indicates that this product is a genuine accessory for Sony video products. When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.

Operaciones avanzadas

Utilización de fuentes de alimentación alternativas

Con esta videocámara podrá elegir cualquiera de las siguientes fuentes de alimentación: batería (pág. 7), corriente de la red, pilas alcalinas, y batería de un automóvil de 12/24 V. Elija la fuente de alimentación apropiada de acuerdo con el lugar donde desee utilizar la videocámara.

Lugar	Fuente de alimentación	Accesorio necesario
Interiores	Corriente de la red	Adaptador de alimentación de CA suministrado
Exteriores	Batería	Batería NP-33 (suministrada), NP-55H, NP-65/67, NP-66, NP-66H/68, NP-77H/77HD, NP-90/90D, NP-98/98D
	Pilas alcalinas LR6 (tamaño AA) Sony	Caja de pilas
En un automóvil	Batería de automóvil de 12 V o 24 V	Paquete de CC DCP-77

Esta marca indica que este producto es un accesorio genuino para los productos de vídeo Sony. A la hora de adquirir los productos de vídeo Sony, recomendamos adquirir los accesorios con esta marca "GENUINE VIDEO ACCESSORIES".

Using the Mains

To use the supplied AC power adaptor:

(1) Connect the mains lead to a wall outlet. Insert the top of the connecting plate of the AC power adaptor into the top of the battery mounting surface. Push the connecting plate so that it attaches firmly.

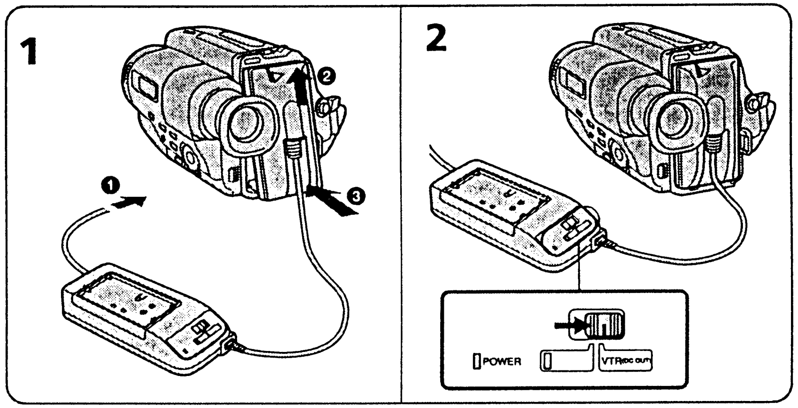
(2) Set the selector to VTR (DC OUT).

Utilización con la corriente de la red

Para utilizar el adaptador de alimentación de CA suministrado:

(1) Conecte el cable de alimentación de CA a una toma de la red. Inserte la parte superior de la placa conectora del adaptador de alimentación de CA en la parte superior de la superficie de montaje de la batería de la videocámara. Empuje la placa de forma que quede firmemente fijada.

(2) Ponga el selector en VTR (DC OUT).



WARNING

Mains lead must only be changed at qualified service shop.

PRECAUTIONS

The set is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the set itself has been turned off.

Notes on the POWER lamp

- The POWER lamp will remain lit for a while even if the unit is unplugged after use. This is normal.
- If the POWER lamp does not light, disconnect the power cord. After about one minute, reconnect the mains lead.

To remove the adaptor

The adaptor is removed in the same way as the battery pack (p. 10).

ADVERTENCIA

El cable de alimentación de CA deberá cambiarse solamente en una estación de servicio cualificada.

PRECAUCIÓN

Este aparato no se desconectará de la fuente de alimentación de CA (red) mientras esté enchufado en una toma de la misma, incluso aunque haya desconectado su alimentación de CA.

Notas sobre la lámpara POWER

- Es normal que la lámpara POEWR permanezca encendida durante un momento aunque desenchufe la unidad después de utilizarla.
- Cuando la lámpara POWER no se encienda, desconecte el cable de alimentación. Aproximadamente un minuto después, vuelva a conectar el cable de alimentación.

Para quitar el adaptador

Quítelo igual que la batería (pág. 10).

Using Alternative Power Sources

Using the Battery Case

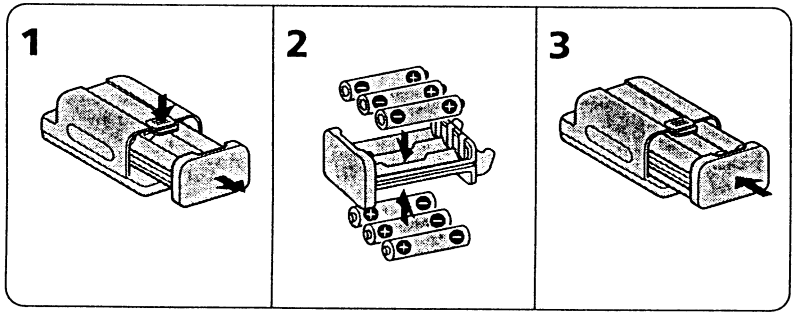
Use the supplied battery case and six LR6 (size AA) Sony alkaline batteries (not supplied).

(1) Remove the battery holder from the battery case.

(2) Insert six new alkaline batteries into the battery holder, following the marking on the holder to be sure the batteries are installed in the correct direction.

(3) Insert the battery holder with the alkaline batteries.

(4) Insert the battery case with the alkaline batteries to the battery mounting surface of the camcorder in the same way as the battery pack (p. 10).



Battery Life

Using Sony alkaline batteries at 25 °C (77 °F)

Model	Typical recording time	Continuous recording time
CCD-TR340E	70 min.	130 min.
CCD-TR520E	50 min.	90 min.

Notes

- The above battery lives are estimates. The battery life may be shorter depending on the storage condition of the battery before being purchased and temperature.
- You may not use the battery case in cold environment.

Utilización de fuentes de alimentación alternativas

Utilización de la caja de pilas

Utilice la caja de pilas (suministrada) y seis pilas alcalinas LR6 (tamaño AA) Sony (no suministradas).

(1) Quite el portapilas de la caja de pilas.

(2) Inserte seis pilas alcalinas nuevas en el portapilas, siguiendo la marcación del portapilas para asegurarse de que las pilas queden instaladas en el sentido correcto.

(3) Inserte el portapilas con las pilas alcalinas.

(4) Fije la caja de pilas con las pilas alcalinas a la superficie de montaje de la videocámara de la misma forma que la batería (pág. 10).

Duración de las pilas

Utilizando pilas alcalinas Sony a 25 °C

Modelo	Tiempo de videofilmación típica	Tiempo de videofilmación continua
CCD-TR340E	70 min.	130 min.
CCD-TR520E	50 min.	90 min.

Notas

- La duración de las pilas indicada es estimada. La duración de las pilas puede acortarse según la condición del almacenamiento anterior a su adquisición y la temperatura.
- Es posible que la caja de pilas no funcione en climas fríos.

To remove the battery case

The battery case is removed in the same way as the battery pack (p. 10).
When you replace the batteries, be sure to remove the battery case from the camcorder to prevent malfunction.

Using a Car Battery

Use the DCP-77 DC pack (not supplied). Connect the cord of the DC pack to the cigarette lighter socket of the car (12 V or 24 V). Connect the DC pack to the battery mounting surface of the camcorder.

To remove the DC pack

The DC pack is removed in the same way as the battery pack (p. 10).

Para quitar la caja de pilas

Quítela igual que la batería (pág. 10).
Cuando reemplace las pilas, cerciórese de quitar la caja de pilas de la videocámara para evitar el mal funcionamiento.

Utilización con la batería de un automóvil

Emplee un paquete de CC DCP-77 (no suministrado). Conecte el cable del paquete de CC a la toma del encendedor de cigarrillos de un automóvil (12 o 24 V). Conecte el paquete de CC a la superficie de montaje de la batería de la videocámara.

Para quitar el paquete de CC

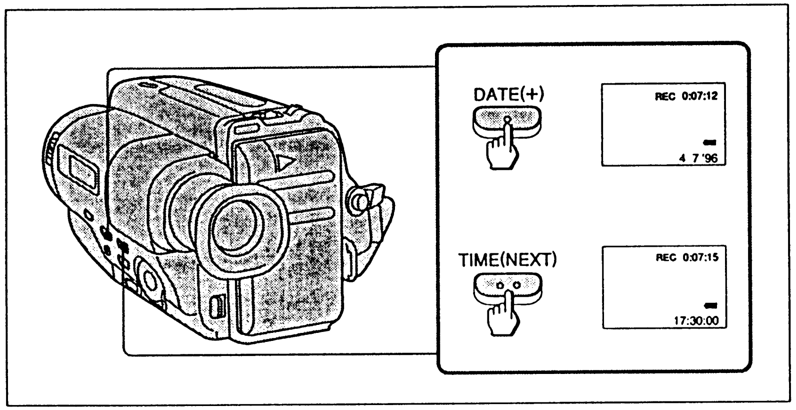
Quítelo igual que la batería (pág. 10).

Recording with the Date or Time

Grabación de la fecha o la hora

Before you start recording or during recording, press the DATE(+) or TIME(NEXT) button. You can record the date or time displayed in the viewfinder with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator in the viewfinder is recorded.
The clock is set to London for the United Kingdom models and Paris for other European models at the factory.

Antes de comenzar la videofilmación, o durante ella, presione la tecla DATE(+) o TIME(NEXT). Usted podrá grabar con las imágenes la fecha o la hora visualizada en el visor. La fecha y la hora no podrán grabarse al mismo tiempo. Además de los indicadores de la fecha y la hora, no se grabará ninguno de los demás indicadores del visor.
El reloj ha sido ajustado en fábrica a la hora de Londres para el modelo destinado al Reino Unido y a la de París para otros modelos destinados a Europa.



To Stop Recording with the Date or Time

Press the DATE(+) or TIME(NEXT) button again. Recording continues.

Para parar la grabación de la fecha o la hora

Vuelva a presionar la tecla DATE(+) o TIME(NEXT). La grabación de las imágenes continuará.

Note

You cannot superimpose a title during recording the date or time.

Nota

Durante la grabación de la fecha o la hora no podrá superponer un título.

Using the PROGRAM AE Function

Utilización de la función PROGRAM AE

You can select from three PROGRAM AE (Auto Exposure) modes to suit your shooting situation. When you use PROGRAM AE, you can capture high-speed action or night views.

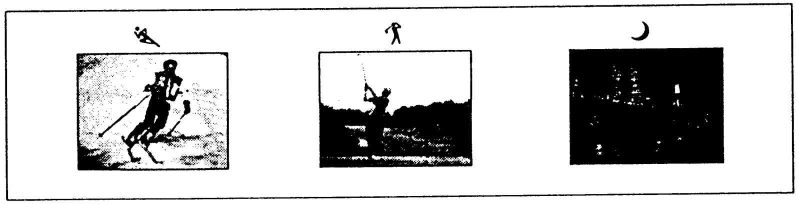
Usted podrá seleccionar entre tres modos de PROGRAM AE (exposición automática programada), de acuerdo con la condición de videofilmación. Con la función de PROGRAM AE, podrá captar una acción a gran velocidad o grabar vistas nocturnas.

Selecting the Best Mode

Select the best mode by using the following examples.

Selección del mejor modo

Seleccione el modo apropiado consultando los siguientes ejemplos.



Sports mode
- Outdoor sports scenes such as football, tennis, golf or skiing
- A landscape in a moving car

High-speed shutter mode
- A golf swing or a tennis match in fine weather with the ball captured clearly
- Playing back certain scenes with high-speed movements in clear, sharp picture

Twilight mode
- Recording night views, neon signs or fireworks

Modo de deportes
- Videofilmación de escenas de deportes de exteriores como fútbol, tenis, golf o esquí
- Videofilmación de paisajes desde un automóvil en marcha

Modo de obturación a alta velocidad
- Un swing de golf o un partido de tenis en un día claro con la pelota visualizada claramente
- Reproducir ciertas escenas con movimientos a gran velocidad en una imagen clara y nítida

Modo de crepúsculo
- Videofilmación de vistas nocturnas, letreros de neón o fuegos artificiales.

Using the PROGRAM AE Fanction

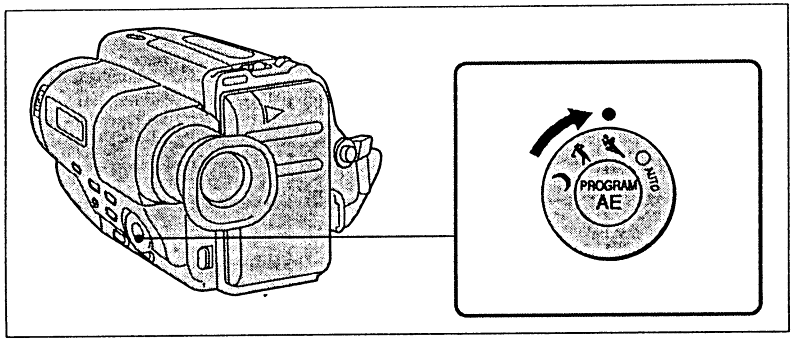
Utilización de la función PROGRAM AE

Using the PROGRAM AE Function

Set the mark of the desired mode to the ● mark above the PROGRAM AE dial.

Utilización de la función PROGRAM AE

Ajuste la marca del modo deseado a la marca ● situada sobre el dial PROGRAM AE.



Note on shutter speed

The shutter speed in each PROGRAM AE mode is as follows:

Sports mode – between 1/50 to 1/500

High-speed shutter mode – 1/4000

Twilight mode – 1/50 (to 1/100 when the Steady Shot is on -CCD-TR520E only)

AUTO mode – 1/50 (to 1/100 when the Steady Shot is on -CCD-TR520E only)

Nota sobre la velocidad de obturación

La velocidad de obturación en cada modo PROGRAME AE es la siguiente:

Modo de deportes – entre 1/50 y 1/500

Modo de obturación a alta velocidad – 1/4000

Modo de crepúsculo – 1/50 (a 1/100 cuando haya activado la función de videofilmación estable -CCD-TR520E solamente)

Modo AUTO – 1/50 (a 1/100 cuando haya activado la función de videofilmación estable -CCD-TR520E solamente)

Shooting with Backlighting

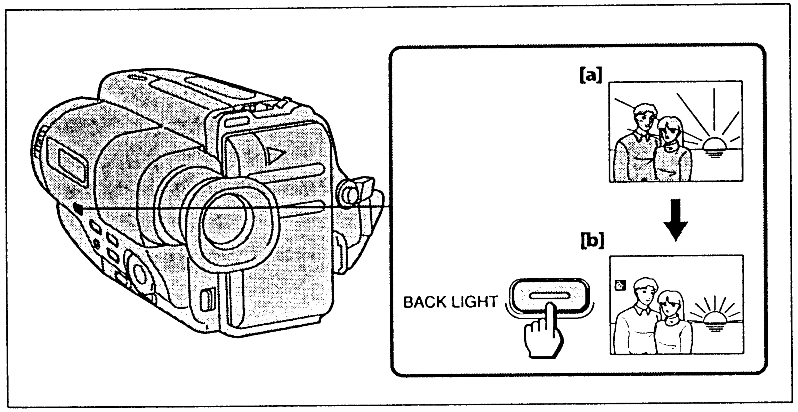
Videofilmación a contraluz

When you shoot a subject with the light source behind the subject or a subject with a light background, use the BACK LIGHT.

Press the BACK LIGHT button. The ▣ indicator appears inside the viewfinder.

Cuando videofilme un motivo con la fuente de iluminación detrás de él o a contraluz, utilice BACK LIGHT.

Presione la tecla BACK LIGHT. En el visor aparecerá el indicador ▣.



[a] Subject is too dark because of backlight.

[b] Subject becomes bright with backlight compensation.

After Shooting

Press the BACK LIGHT button again to let the ▣ indicator go out under normal lighting condition. Otherwise, the picture will be too bright under normal lighting condition.

This function is also effective under following conditions:

- On the snow e.g. at the ski resort
- At the beach under strong sunshine
- A subject with a light source nearby or a mirror reflecting light
- A white subject against a white background. Especially when you shoot a person wearing shiny clothes made of silk or synthetic fiber, his or her face tends to become dark if you do not use this function.

[a] El motivo está demasiado oscuro debido a la contraluz.

[b] El motivo se ve claro con la compensación de la contraluz.

Después de la videofilmación

Vuelva a presionar la tecla BACK LIGHT de forma que desaparezca el indicador ▣ con la iluminación en condición normal. De lo contrario, las imágenes se grabarán demasiado brillantes con la iluminación en condición normal.

Esta función también será efectiva en las siguientes condiciones:

- Paisaje de nieve, p. ej. en una pista de esquí.
- En una playa con luz solar fuerte.
- Un motivo con una fuente de iluminación cercana o un espejo que refleje luz.
- Un motivo blanco contra un fondo blanco. Especialmente cuando videofilme una persona vestida con ropa brillante como de seda o fibra sintética sin utilizar esta función, el rostro tenderá a grabarse oscuro.

Selecting the START/ STOP Mode

Your camcorder has two modes besides normal start/stop mode. These modes enable you to take a series of quick shots resulting in a lively video.

(1) Set START/STOP MODE to the desired mode.
  ⊻ : Recording starts when you press START/STOP, and stops when you press it again (normal mode).
  ⍊ : The camcorder records only while you press down START/STOP.
  5 SEC : When you press START/STOP, the camcorder records for about 5 seconds and then stops automatically.

(2) Turn STANDBY up and press START/STOP. Recording starts.

If you selected 5 SEC, five dots appear in the viewfinder. The dots disappear at a rate of one per second as illustrated below. When about five seconds elapse and all the dots disappear, the camcorder switches to Standby mode automatically.
If you selected ⍊ , the camcorder records as long as you hold down START/STOP.

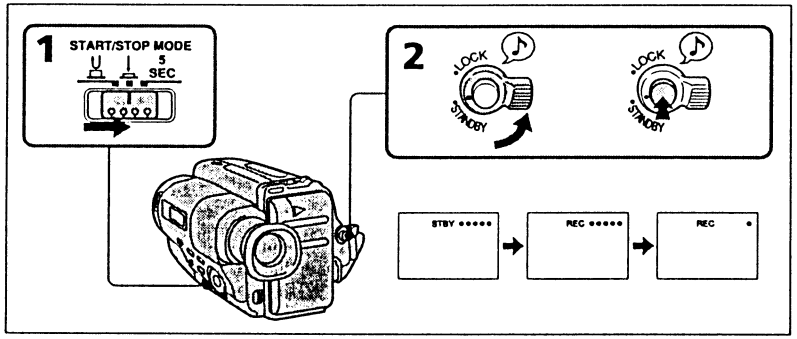
Selección del modo de inicio/parada

Su videograbadora posee dos modos además del normal de inicio/parada. Estos modos le permitirán videofilmar una serie de tomas rápidas, lo que resultará en un vídeo alegre.

(1) Ajuste START/STOP MODE al modo deseado.
  ⊻ : La grabación se iniciará cuando presione START/STOP, y se parará cuando vuelva a presionarla (modo normal).
  ⍊ : La videocámara solamente videofilmará mientras mantenga presionada START/STOP.
  5 SEC: Cuando presione START/STOP, la videocámara grabará durante unos 5 segundos y después se parará automáticamente.

(2) Gire STANDBY hacia arriba y presione START/STOP. Se iniciará la grabación.

Si ha seleccionado 5 SEC, en el visor aparecerán cinco puntos. Los puntos desaparecerán a un ritmo de uno por segundo como se indica en la ilustracíon siguiente después de haber transcurrido unos cinco segundos y de haber desaparecido todos los puntos, la videocámara cambiará automáticamente al modo de espera.
Si ha seleccionado ⍊ , la videocámara grabará mientras mantenga presionada START/STOP.



To Extend the Recording Time in 5 SEC Mode

Press the START/STOP button again before all the dots disappear. Recording continues for about 5 seconds from the moment you press the START/STOP button.

Para prolongar el tiempo de videofilmación en el modo 5 SEC

Vuelva a presionar la tecla START/STOP antes de que hayan desaparecido todos los puntos. La grabación continuará durante unos 5 segundos desde el momento en el que presionó la tecla START/STOP.

Superimposing a Title

You can select from ten preset titles to superimpose it on the picture during recording. Each time you press the TITLE button, the preset titles appear one by one.

To Superimpose from the Beginning

(1) Set the POWER switch to CAMERA.
(2) Turn STANDBY up.
(3) Press TITLE repeatedly until the desired title appears. The title flashes.
(4) Press START/STOP to start recording.
(5) Press TITLE when you want to turn off the title.

To Superimpose On the Way of Recording

(1) Press TITLE repeatedly until the desired title appears. The title flashes.
(2) When the title stops flashing, press TITLE. The title disappears.
(3) Press START/STOP to start recording.
(4) Press TITLE when you want to superimpose the title.
(5) Press TITLE when you want to turn off the title.

Superposición de un título

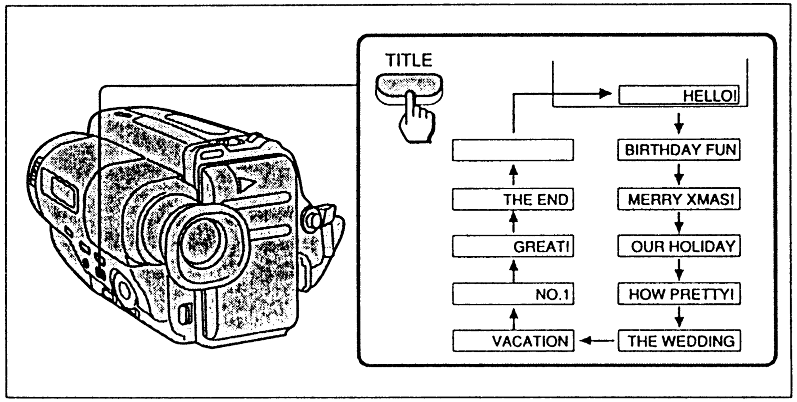
Usted podrá seleccionar un título entre diez títulos memorizados y superponerlo sobre las imágenes durante la grabación. Cada vez que presione la tecla TITLE, los títulos memorizados aparecerán uno por uno.

Para superponer desde el comienzo

(1) Ponga el selector POWER en CAMERA.
(2) Gire STANDBY hacia arriba.
(3) Presione repetidamente TITLE hasta que aparezca el título deseado. El título parpadeará.
(4) Presione START/STOP para iniciar la videofilmación.
(5) Presione TITLE cuando desee que el título desaparezca.

Para superponer en medio de la videofilmación

(1) Presione repetidamente TITLE hasta que aparezca el título deseado. El título parpadeará.
(2) Cuando el título deje de parpadear, presione TITLE. El título desaparecerá.
(3) Presione START/STOP para iniciar la videofilmación.
(4) Presione TITLE cuando desee superponer el título.
(5) Vuelva a presionar TITLE cuando desee que el título desaparezca.



Note on selecting a title
You cannot select a title during recording.

Nota sobre la selección del título
El título no podrá seleccionarse durante la grabación.

Using the Wide Mode Function

- CCD-TR520E only

You can record a 16:9 wide picture to watch on the 16:9 wide-screen TV.

Using the Wide Mode Function

Set STEADY SHOT/16:9 WIDE to 16:9 WIDE. The picture in the viewfinder **[a]** or on a normal TV **[b]** is horizontally compressed. You can watch the picture of normal images on a wide-screen TV **[c]**.

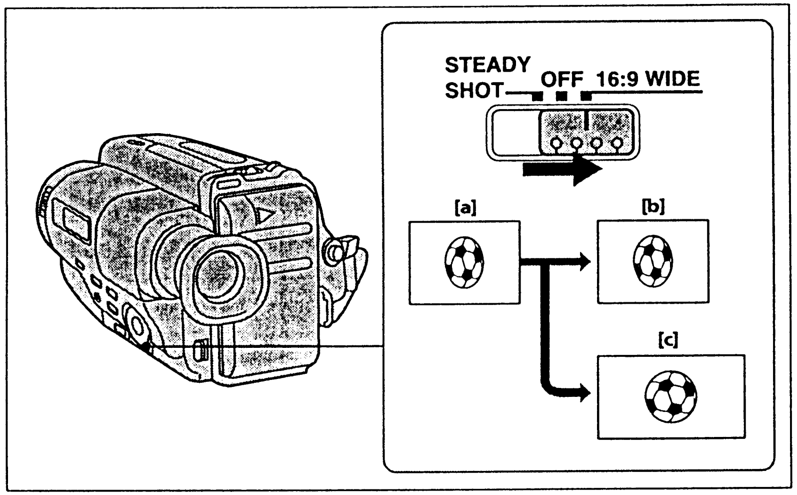
Utilización del modo de pantalla amplia

- CCD-TR520E solamente

Usted podrá videofilmar imágenes con 16:9 WIDE para contemplarlas en un televisor de pantalla amplia de 16:9.

Utilización de la función del modo de pantalla amplia

Ajuste STEADY SHOT/16:9 WIDE a 16:9 WIDE. La imagen del visor **[a]** o la de un televisor normal **[b]** se comprimirá horizontalmente. Usted podrá contemplar imágenes normales en un televisor de pantalla amplia **[c]**.



To Release the Wide Mode
Set STEADY SHOT/16:9 WIDE to OFF.

Notes on wide mode
- In 16:9 WIDE mode, the STEADY SHOT does not work.
- When you record in 16:9 WIDE mode, the date or time indicator will be widened on the wide-screen TV.
- If you dub a tape, the tape is copied in the same mode as the original recording.

Para desactivar el modo de pantalla amplia
Ajuste STEADY SHOT/16:9 WIDE a OFF.

Notas sobre el modo de pantalla amplia
- En el modo 16:9 WIDE, el modo de videofilmación estable (STEADY SHOT) no trabajará.
- Cuando videofilme en el modo 16:9 WIDE, el indicador de la fecha o de la hora se verá ampliado en el televisor de pantalla amplia.
- Cuando duplique una videocinta, ésta se copiará con el mismo modo que el de grabación original.

Using the STEADY SHOT Function

- CCD-TR520E only

You can use the Steady Shot to compensate for camera-shake. Do not use the Steady Shot when shooting a stationary object with a tripod.

Using the STEADY SHOT Function

Set STEADY SHOT/16:9 WIDE to STEADY SHOT.

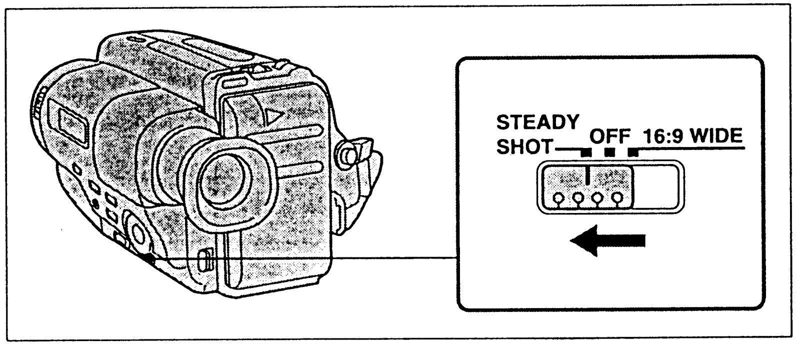
Utilización de la función de videofilmación estable

- CCD-TR520E solamente

Usted podrá utilizar la función de videofilmación estable para compensar las sacudidas de la videocámara. No utilice esta función cuando videofilme un motivo estacionario con un trípode.

Utilización de la función de videofilmación estable

Deslice STEADY SHOT/16:9 WIDE hasta STEADY SHOT.



To Release the Steady Shot
Set STEADY SHOT/16:9 WIDE to OFF.

Notes on the Steady Shot
- The Steady Shot will not correct excessive camera-shake.
- When you switch the Steady Shot on or off, the exposure may fluctuate.
- When you use the Steady Shot function, the 16:9 WIDE does not work.

Para desactivar la función de videofilmación estable
Deslice STEADY SHOT/16:9 WIDE hasta OFF.

Notas sobre la videofilmación estable
- La videofilmación estable no corregirá sacudidas excesivas de la videocámara.
- Cuando active o desactive la función de videofilmación estable, es posible que fluctúe la exposición.
- Cuando haya seleccionado el modo 16:9 WIDE, la función de videofilmación estable no trabajará.

Changing the Mode Settings

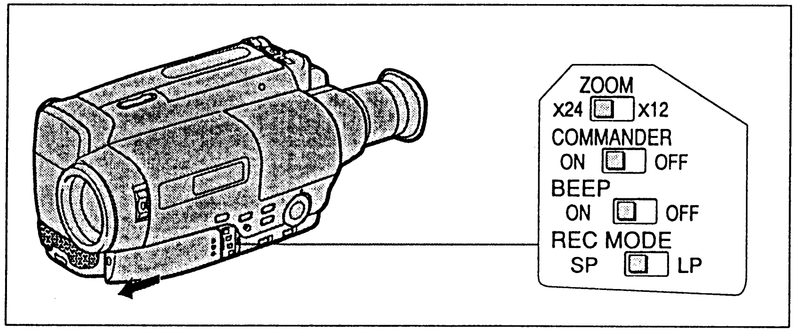
You can change the mode settings to further enjoy the features and functions.

(1) Slide the cover to the left. You will find the mode switches.
(2) Set the mode switches to the desired mode.
(3) Close the cover.

Cambio de los ajustes de modo

Usted podrá cambiar los ajuste de modo para disfrutar más de las funciones de la videocámara.

(1) Deslice la cubierta hacia la izquierda. Encontrará los selectores de modo.
(2) Ponga los selectores de modo en la posición deseada.
(3) Cierre la cubierta.



Selecting the Mode Setting of Each Item

ZOOM <x24/x12> (CCD-TR520E only)
- Set to x24 to activate digital zooming.
- Set to x12 otherwise. The zooming ability becomes x12.

COMMANDER <ON/OFF>
- Set to ON when using the supplied Remote Commander for the camcorder.
- Set to OFF when not using the Remote Commander for the camcorder.

BEEP <ON/OFF>
- Set to ON to turn the beep sound on.
- Set to OFF to turn the beep sound off.

REC MODE <SP/LP>
- Select SP to record a tape in SP (standard play) mode.
- Select LP to record a tape in LP (long play) mode.

Selección de los ajustes de modo en cada ítem

ZOOM <x24/x12> (CCD-TR520E solamente)
- Ajústelo a x24 para activar el zoom digital.
- De lo contrario, ajústelo a x12. El zoom pasará a 12 aumentos.

COMMANDER<ON/OFF>
- Seleccione ON cuando desee emplear el telemando suministrado.
- Seleccione OFF cuando no vaya a emplear el telemando para controlar la videocámara.

BEEP<ON/OFF>
- Seleccione ON para oír el pitido.
- Seleccione OFF si no desea oír el pitido.

REC MODE <SP/LP>
- Seleccione SP para grabar la cinta en el modo SP (duración estándar).
- Seleccione LP para grabar la cinta en el modo LP (duración larga).

Editing onto Another Tape

You can create your own video programme by editing with any other 8 8 mm, Hi8 Hi8, VHS VHS, S-VHS S-VHS, VHS C VHSC, S-VHS C S-VHSC, β Betamax VCR that has video/audio inputs.

After connecting the camcorder to the VCR,

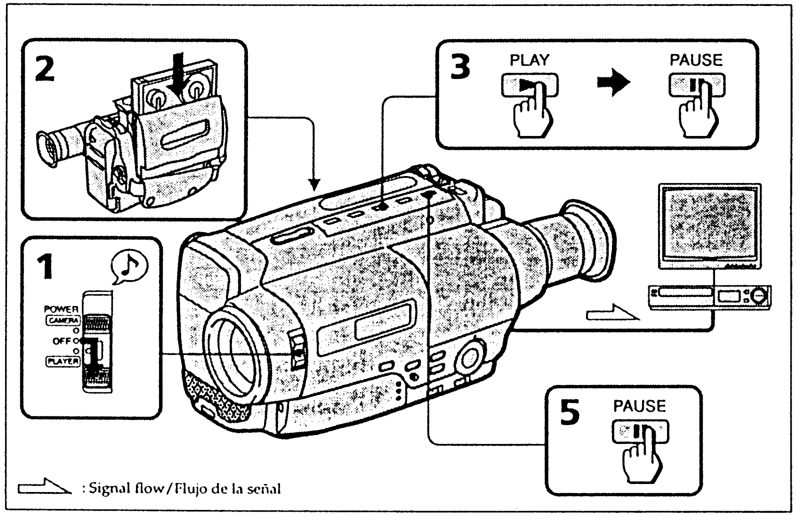
(1) Slide the POWER switch to PLAYER.
(2) Insert a blank tape (or a tape you want to record over) into the recording VCR. Then insert your recorded tape into the camcorder.
(3) Play back the recorded tape on the camcorder until you locate the point where you want to start editing. Then press **II** to set the camcorder to playback pause mode.
(4) Set the recording VCR to recording pause mode.
(5) Press **II** on the camcorder and then on the VCR to start editing.

Edición en otra cinta

Usted podrá crear su propio programa de vídeo editando con una videograbadora de formato de 8mm 8, 8mm de Hi8 Hi8, VHS VHS, S-VHS S-VHS, VHSC VHS C, S-VHSC S-VHS C o Betamax β que disponga de entradas de audio/vídeo.

Después de conectar la videocámara a la videograbadora.

(1) Deslice el selector POWER hasta PLAYER.
(2) Inserte un videocassette en blanco (o una cinta en la que desee realizar la regrabación) en la videograbadora y la cinta grabada en la videocámara.
(3) Reproduzca la cinta grabada en la videocámara hasta localizar el punto en el que desee comenzar la edición. Después presione **II** para poner la videocámara en el modo de reproducción en pausa.
(4) Ponga la videograbadora en el modo de grabación en pausa.
(5) Presione **II** de la videocámara y después de la videograbadora para comenzar la edición.



To Edit More Scenes

Repeat steps 3 to 5.

To Stop Editing

Press ■ STOP on the camcorder and VCR.

Para editar más escenas

Repita los pasos 3 a 5.

Para parar la edición

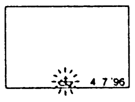
Presione ■ STOP de la videocámara y la videograbadora.

Changing the Lithium Battery in the Camcorder

Your camcorder is supplied with a lithium battery installed. When the battery becomes weak or dead, the ☼ indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. In this case, **replace the battery with a Sony CR2025 lithium battery. Use of any other battery may present a risk of fire or explosion.**
The lithium battery for the camcorder lasts for about 1 year under normal operation. (The lithium battery that comes installed at the factory may not last 1 year.)

Reemplazo de la pila de litio de la videocámara

En la videocámara se ha insertado en fábrica una pila de litio. Cuando la pila de litio se debilite o agote, el indicador ☼ parpadeará en el visor durante unos 5 segundos cuando ponga el selector POWER en CAMERA. En este caso, **reemplace la pila por otra de litio CR2025 Sony. El empleo de cualguier otra pila puede suponer un riesgo de incendio o explosión.**
La pila de litio para la videocámara durará aproximadamente 1 año en condiciones normales de funcionamiento. (La pila de litio instalada en fábrica en la videocámara puede que no dure 1 año.)

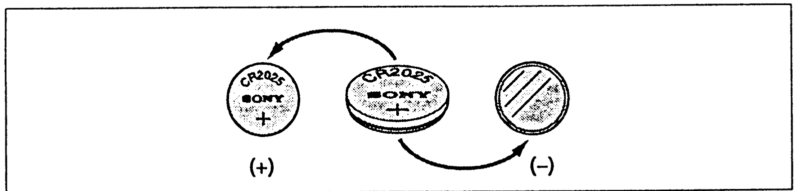


Note on Lithium Battery

Note that the lithium battery has a positive (+) and a negative (-) terminals as illustrated. **Be sure to install the lithium battery so that terminals on the battery match the terminals on the camcorder.**

Nota sobre la pila de litio

Tenga en cuenta que la pila de litio posee un terminal positivo (+) y otro negativo (-) como se ilustra. **Cerciórese de colocar la pila de litio de forma que los terminales de la pila coincidan con los de la videocámara.**



WARNING
The battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

Caution
Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.

ADVERTENCIA
Si trata mal la pila, puede explotar. No recargue, desarme, ni tire la pila al fuego.

Precaución
Mantenga la pila de litio fuera de alcance de los niños. Si alguien traga la pila, consulte inmediatamente a un médico.

Changing the Lithium Battery

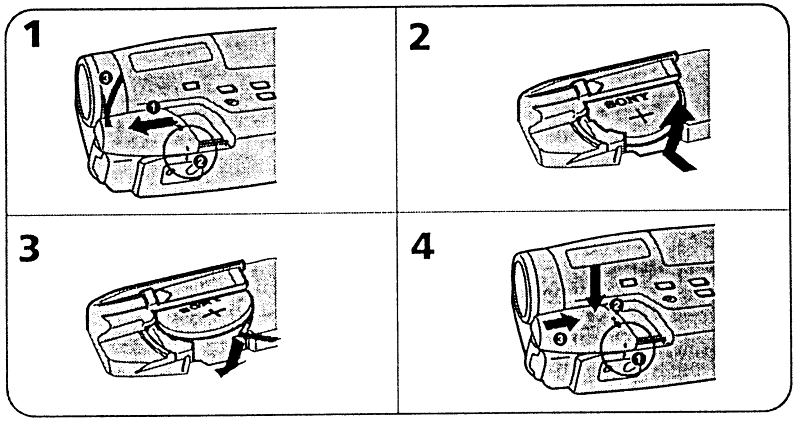
When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date and time.

(1) Slide the cover and align the mark of the cover to that of the body. Press down the cover.
(2) Push the battery in once and pull it out from the holder.
(3) Install the lithium battery with the positive (+) side facing out.
(4) Align the mark of the cover to that of the body. Press the cover until it clicks and slide the cover.

Reemplazo de la pila de litio

Durante el reemplazo de la pila de litio, mantenga la batería u otra fuente de alimentación conectada. De lo contrario, deberá reajustar la fecha y la hora.

(1) Deslice la cubierta y alinee la marca de la cubierta con la marca del cuerpo. Presione la cubierta hacia abajo.
(2) Empuje la pila una vez y extráigala de su compartimiento.
(3) Coloque una pila de litio nueva con la cara positiva (+) hacia afuera.
(4) Alinee la marca de la cubierta con la marca del cuerpo. Presione la cubierta hasta que chasquee y deslícela.



Resetting the Date and Time

Reajuste de la fecha y la hora

Reset the date and time using the DATE(+) and TIME(NEXT) buttons.

(1) Slide the POWER switch to CAMERA.

(2) Turn STANDBY up.

(3) Press DATE(+) and TIME(NEXT) simultaneously until the year indicator flashes in the viewfinder.

(4) Set year, month, day, time, minute by pressing DATE(+) and TIME(NEXT). Note that when you keep DATE(+) pressed, the digits advance faster.

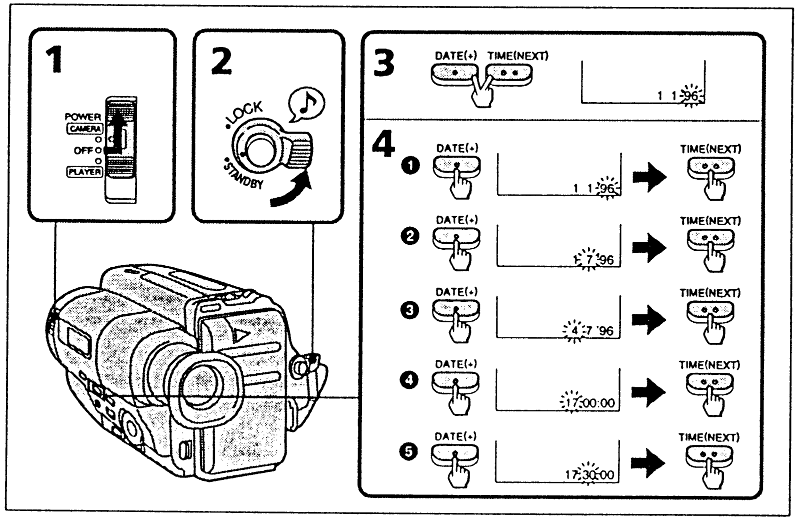
Reajuste la fecha y la hora utilizando las teclas DATE(+) y TIME(NEXT).

(1) Deslice el selector POWER hasta CAMERA.

(2) Gire STANDBY hacia arriba.

(3) Presione simultáneamente DATE(+) y TIME(NEXT) hasta que en el visor parpadee el indicador del año.

(4) Ajuste el año, mes, día, hora y minutos presionando DATE(+) y TIME(NEXT). Tenga en cuenta que si mantiene presionada DATE(+), los dígitos avanzarán con mayor rapidez.



To Correct the Date and Time Setting

Repeat steps 3 and 4.

To Check the Date and Time

Press the DATE(+) button to display the date indicator in the viewfinder. Press the TIME(NEXT) button to display the time indicator. When you press the same button again, the indicator goes out.

Para corregir los ajustes de la fecha y la hora

Repita los pasos 3 y 4.

Para comprobar la fecha y la hora

Presione la tecla DATE(+) de forma que el indicador de la fecha aparezca en el visor. Presione la tecla TIME(NEXT) para visualizar el indicador de la hora. Cuando vuelva a presionar la misma tecla, el indicador desaparecerá.

The year indicator changes as follows:

'96 → '97 ·········→ '25

Note on the time indicator

The internal clock of the camcorder operates on a 24-hour cycle.

El indicador del año cambiará como sigue:

'96 → '97 ·········→ '25

Nota sobre el indicador de la hora

El reloj interno de la videocámara trabaja con un ciclo de 24 horas.

Playback Modes

Modos de reproducción

The playback mode is selected automatically according to the recording system (SP/LP mode) in which the tape was recorded.

Foreign 8 mm video

You cannot play back tapes recorded on a different TV colour system. Because the TV colour systems differ from country to country, you may not be able to play back foreign pre-recorded tapes. Refer to the list of "Using Your Camcorder Abroad" to check the TV colour system of foreign countries.

El modo de reproducción se seleccionará automáticamente de acuerdo con el sistema de grabación (modo SP/LP) en el que se haya grabado la cinta.

Videocassette de 8 mm de otro país

Con esta videocámara no podrá reproducir cintas grabadas en un sistema de televisión en color diferente. Como el sistema de televisión en color difiere en cada país, es posible que no pueda reproducir cintas grabadas en otro país. Con respecto al sistema de televisión en color de otros países, consulte "Utilización de la videocámara en el extranjero"

Tips for Using the Battery Pack

This section shows you how you can get the most out of your battery pack.

Preparing the Battery Pack

Always Carry Additional Batteries

Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned.

Battery Life is Shorter in Cold Environment

Battery efficiency is decreased and the battery will be used up more quickly if you are recording in cold environment.

To Save Battery Power

Turn STANDBY on the camcorder down when not recording to save battery power.
A smooth transition between scenes can be made even if recording is stopped and started again. While positioning the subject, selecting an angle, or looking through the viewfinder lens, the lens moves automatically and the battery is used. The battery is also used when a cassette is inserted or removed.

When to Replace the Battery

While you are using your camcorder in CAMERA mode, the remaining battery indicator decreases gradually as battery power is used up.

Consejos para utilizar la batería

En esta sección se explica la forma de obtener el máximo rendimiento de la batería.

Preparación de la batería

Lleve siempre baterías adicionales

Prepare suficientes baterías como para poder alimentar la videocámara el doble o el triple del tiempo de videofilmación planeado.

La duración de la batería se acortará en climas fríos.

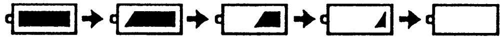
La eficacia de la batería disminuirá y se gastará con mayor rapidez si graba en climas fríos.

Para ahorrar batería

Gire STANDBY de la videocámara hacia abajo cuando no vaya a videofilmar a fin de ahorrar batería.
Aunque detenga y reinicie la videofilmación, obtendrá una grabación sin transiciones bruscas entre las escenas. Mientras encuadre el motivo o seleccione un ángulo, u observe a través del visor, el objetivo se moverá automáticamente y se utilizará la batería. La batería también se utilizará al insertar o extraer un videocassette.

Cuándo reemplazar la batería

Mientras esté utilizando la videocámara en el modo CAMERA, el indicador de carga restante de la batería disminuirá gradualmente a medida que se reduzca la carga de la batería.



When the remaining battery indicator reaches the lowest point, the ▭ indicator appears and starts flashing in the viewfinder.
When the ▭ indicator in the viewfinder disappears and the battery lamp flashes rapidly, turn the POWER switch to OFF on the camcorder and replace the battery pack. Leave the tape in the camcorder to obtain smooth transition between scenes after the battery pack has been replaced.

Note on the remaining battery indicator
The remaining battery indicator of the camcorder may indicate a different remaining capacity from that of the battery pack with the remaining battery indicator (not supplied). The indicator of the battery pack is more accurate.

Notes on the Rechargeable Battery Pack

Caution

Never leave the battery pack in temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.

The Battery Heats Up

During charging or recording, the battery pack heats up. This is caused by energy that has been generated and a chemical change that has occurred inside the battery pack. This is not cause for concern and is normal.

Battery Pack Care

- Remove the battery pack from the camcorder after using it, and keep it in a cool place. When the battery pack is installed to the camcorder, a small amount of current flows to the camcorder even if the POWER switch is set to OFF. This is shortens battery life.
- The battery pack is always discharging even when it is not in use after charging. Therefore, you should charge the battery right before using the camcorder.

Cuando el indicador de carga restante de la batería llegue al punto mínimo, en el visor aparecerá el indicador ▭ y comenzará a parpadear.
Cuando el indicador ▭ en el visor cambie de parpadeo lento a rápido mientras grabe, gire el selector POWER de la videocámara hasta OFF y reemplace la batería. Deje el videocassette en la videocámara para obtener una grabación sin transiciones bruscas entre las escenas después de haber reemplazado la batería.

Nota sobre el indicador de carga restante de la batería
Es posible que este indicador de la videocámara señale una capacidad restante diferente a la indicada por el indicador de la batería (no suministrada). El indicador de la batería es más preciso.

Notas sobre la batería

Precaución

No deje nunca la batería en lugares con una temperatura superior a 60°C, como en el interior de un automóvil aparcado al sol, ni sometido a la luz solar directa.

La batería se calentará

Durante la carga o la grabación, la batería se calentará. Esto se debe a la energía generada y al cambio químico que se produce en el interior de la batería, y no significa problema alguno, es normal.

Cuidado de la batería

- Después de haber empleado la batería quítela de la videocámara y guárdela en un lugar fresco. Mientras la batería esté fijada a la videocámara, circulará una pequeña cantidad de corriente incluso aunque el selector POWER esté en OFF. Esto acortará la duración útil de la batería.
- La batería estará siempre descargándose, incluso aunque no se utilice. Por lo tanto, se recomienda cargarla antes de emplear la videocámara.

Tips for Using the Battery Pack

Consejos para utilizar la batería

How to Use the Switch on the Battery Pack

When the switch is supplied with the battery pack ([a] on p. 45) you can use it to find whether the battery pack is charged or not. Set the switch to the "no mark" position when charging is completed. Set the switch to the "red mark" position when the battery is used up (or in whichever direction you want to remind yourself).

The Life of the Battery Pack

If the battery lamp flashes rapidly just after turning on the camcordrer with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

Charging Temperature

You should charge batteries at temperatures from 10°C to 30°C (from 50°F to 86°F). Lower temperatures require a longer charging time.

Notes on Charging

A Brand-new Battery

A brand-new battery pack is not charged. Before using the battery pack, charge it completely.

Before Recharging a Used Battery Pack

- Make sure to use up the battery before recharging.
- If recording is completed before the ⊂⊃ indicator appears in the viewfinder, you should remove the tape, turn the POWER switch to CAMERA, turn the STANDBY switch up, and leave the camcorder until the ⊂⊃ indicator flashes rapidly.
- **Charging the usable battery causes a lowering of battery capacity. Battery capacity can be recovered if you fully discharge and charge the battery again.**

After Long Storage

Recharge the battery pack after a long period of storage. If the battery pack is charged fully but not used for a long time (about 1 year), it becomes discharged. Charge it again, but in this case the battery life will be shorter than normal. After several charging and discharging cycles, the battery life will recover its original capacity.

Utilización del señalador de la batería

Si la batería posee un señalador ([a] de la pág. 45), usted podrá utilizarlo para saber si la batería está cargada o no. Ponga el selector en la posición "sin marca" cuando finalice la carga.
Póngalo en la posición de la "marca roja" cuando la batería esté descargada completamente (o en el sentido que desee y pueda recordar usted mismo).

Vida útil de la batería

Si la lámpara indicadora de estado de battería parpadea rápidamente después de haber conectado la alimentación de la videocámara con una batería completamente cargada, habrá que reemplazarla por otra nueva completamente cargada.

Temperatura durante la carga

Cargue la batería a una temperatura comprendida entre 10 y 30°C. A bajas temperaturas, la carga tardará más en realizarse.

Notas sobre la carga

Baterías nuevas

Una batería nueva no estará cargada. Antes de utilizarla, cárguela completamente.

Antes de recargar baterías usadas

- Asegúrese de utilizar completamente la batería antes de cargarla.
- Si finaliza la videofilmación antes de que en el visor aparezca el indicador ⊂⊃, extraiga el videocassette, gire el selector POWER hasta CAMERA, gire el interruptor STANDBY hacia arriba y deje la videocámara hasta que el indicador ⊂⊃ parpadee rápidamente.
- **Si carga una batería sin descargar hará que la capacidad de la misma disminuya. La capacidad de la batería podrá recuperarse si vuelve a descargar y cargarla completamente.**

Después de no haber utilizado una batería durante mucho tiempo

Recargue la batería después de no haberla utilizado durante mucho tiempo. Si una batería cargada completamente no se utiliza durante mucho tiempo (aproximadamente 1 año), ésta se descargará. Vuelva a cargar la batería, pero en este caso su duración será más corta de lo normal. Después de varios ciclos de carga y descarga, la batería recuperará su capacidad original.

Notes on the Terminals

If the terminals (metal parts on the back) are not clean, the battery charge duration will be shortened.
When the terminals are not clean or when the battery pack has not been used for a long time, repeatedly install and remove the battery pack a few times. This improves the contact condition. Also, wipe the + and – terminals with a soft cloth or paper.

Be Sure to Observe the Following

- **To prevent an accident caused by a short circuit, do not allow metal objects such as a necklace to touch the battery terminals. Carry the battery pack attaching to the terminal cover. [b]**
- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor try to disassemble the battery pack.
- Do not expose the battery pack to any mechanical shock.

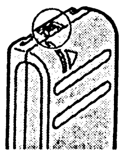
Notas sobre los terminales

Si los terminales (partes metálicas de la parte posterior) no están limpios, la duración de la carga de la batería se acortará.
Cuando los terminales no estén limpios o no haya utilizado la batería durante mucho tiempo, fije y quite la batería varias veces. Esto mejorará el contacto. Además, frote los terminales + y – con un paño o un papel suave.

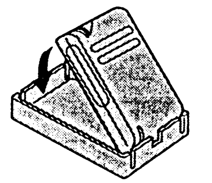
Tenga en cuenta lo siguiente

- **Para prevenir accidentes debido a un cortocircuito, no deje que objetos metálicos como un collar entren en contacto con los terminales de la batería. Cuando lleve la batería, fíjele la cubierta de terminales. [b]**
- Mantenga la batería alejada del fuego.
- Mantenga seca la batería.
- No abra ni desarme la batería.
- No someta la batería a ninguna clase de golpes.

[a]



[b]



Notes on the Battery Case

- **Use only with alkaline batteries. You cannot use the battery case with manganese batteries or R6 (size AA) rechargeable NiCd batteries.**
- **Using with Sony alkaline batteries is preferable.**
- Battery life is remarkably shorter in a cold environment (lower than 10 °C/50 °F).
- Keep the metal part clean. If it gets dirty, wipe it with a soft cloth.
- Do not disassemble or convert the battery case.
- Do not expose the battery case to any mechanical shock.
- During recording, the battery case heats up. This is not cause for concern.
- Prevent the electrode in the battery case from coming in contact with a metal object.
- If you will not use the battery case for a long time, detach the battery case from the camcorder and remove the batteries from the battery case.

Notas sobre la caja de pilas

- **Utilícela solamente con pilas alcalinas. No podrá emplearla con pilas de manganeso ni baterías de NiCd de R6 (tamaño AA).**
- **Es aconsejable que la utilice con pilas alcalinas Sony.**
- La duración de las pilas se acortará en climas fríos (inferiores a 10 °C).
- Mantenga limpia la parte metálica. Si se ensucia, frótela con un paño suave.
- No desarme ni convierta la caja de pilas.
- No exponga la caja de pilas a ninguna clase de golpes.
- Durante la videofilmación, la caja de pilas se calentará. Esto no es motivo de preocupación.
- Evite que los electrodos de la caja de pilas entren en contacto con un objeto metálico.
- Si no va a utilizar la caja de pilas durante mucho tiempo, quítela de la videocámara y extraiga las pilas de la misma.

Tips for Using the Battery Pack

Notes on Alkaline Batteries

To avoid possible damage from battery leakage or corrosion, observe the following.

- Be sure to insert the batteries in the correct direction.
- Alkaline batteries are not rechargeable.
- Do not use a combination of new and old batteries.
- Do not use different types of batteries.
- The batteries slowly discharge while not in use.
- Do not use a battery that is leaking.

If battery leakage occurred

- Wipe off the liquid in the battery case carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.

Consejos para utilizar la batería

Notas sobre las pilas alcalinas

Para evitar el daño que podría causar el derrame del electrólito de las pilas o la corrosión, tenga en cuenta lo siguiente.

- Asegúrese de insertar las pilas en el sentido correcto.
- Las pilas alcalinas no pueden recargarse.
- No utilice una combinación de pilas nuevas y usadas.
- No emplee pilas de tipos diferentes.
- Las pilas se descargarán lentamente aunque no se utilicen.
- No utilice una pila con derrame de su electrólito.

Si se produce un derrame del electrólito de las pilas

- Limpie cuidadosamente el líquido de la caja de pilas antes de reemplazar las pilas.
- Si toca el líquido, lávese con agua.
- Si el líquido penetra en sus ojos, lávelos con mucha agua y consulte a un médico.

Maintenance Information and Precautions

Información sobre el mantenimiento y precauciones

Moisture Condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or the unit may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. Please, take the following precautions.

Inside the Camcorder

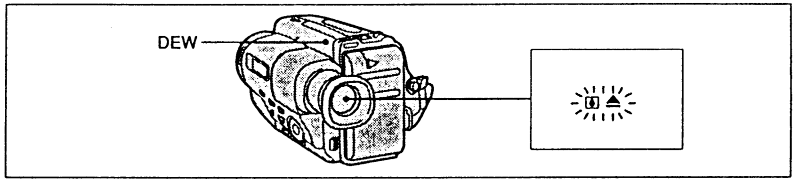
If there is moisture inside the camcorder, the beep sounds and the DEW lamp or the ▣ indicator flashes. If this happens, none of the function except cassette ejection will work. Open the cassette compartment, turn off the camcorder, and leave it about 1 hour. When the ⏏ indicator flashes at the same time, the cassette is inserted in the camcorder. Eject the cassette, turn off the camcorder, and leave also the cassette about 1 hour. The comcorder can be used again if the ▣ indicator does not appear when the power is turned on again.

Condensación de humedad

Si traslada directamente la videocámara de un lugar frío a otro cálido, es posible que se condense humedad en su interior, en la superficie de la cinta, o en el objetivo. En tales condiciones, la cinta puede adherirse al tambor de cabezas y estropearse, o la videocámara puede no funcionar adecuadamente. Para evitar la posibilidad de daños en estas circunstancias, la videocámara dispone de sensores de humedad. Tenga en cuenta las precauciones siguientes.

En el interior de la videocámara

Si se condensa humedad en el interior de la videocámara, sonará un pitido y parpadeará la lámpara DEW o el indicador ▣. En tal caso, no trabajará ninguna función excepto la de expulsión del videocassette. Abra el compartimiento del videocassette, desconecte la alimentación de la videocámara, y déjela durante aproximadamente 1 hora. Cuando el indicador ⏏ parpadee al mismo tiempo, habrá un videocassette insertado en la videocámara. Extraiga el videocassette, desconecte la alimentación de la videocámara, y deje también el videocassette durante aproximadamente 1 hora. La videocámara podrá volver a utilizarse cuando no aparezca el indicador ▣ al conectar de nuevo la alimentación.



On the Lens

If moisture condenses on the lens, no indicator appears, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

How to Prevent Moisture Condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.

(1) Be sure to tightly seal the plastic bag containing the camcorder.

(2) Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about 1 hour).

En el objetivo

Si se condensa humedad en el objetivo, no aparecerá ningún indicador, pero la imagen se volverá borrosa. Desconecte la alimentación y no utilice la videocámara durante aproximadamente 1 hora.

Cómo prevenir la condensación de humedad

Cuando traslade la videocámara de un lugar frío a otro cálido, coloque la videocámara en una bolsa de plástico y deje que se adapte a las condiciones ambientales de la habitación durante cierto tiempo.

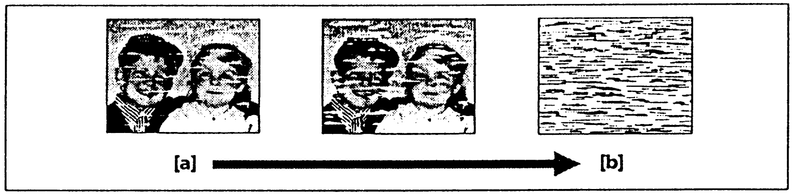
(1) No se olvide de cerrar firmemente la bolsa de plástico que contiene la videocámara.

(2) Saque la videocámara de la bolsa cuando la temperatura del aire del interior de la bolsa haya alcanzado la ambiental (después de 1 hora aproximadamente).

Maintenance Information and Precautions

Video Head Cleaning

To ensure normal recording and clear pictures, clean the video heads. When the ⊗ indicator appears in the viewfinder in CAMERA mode or playback pictures are "noisy" or hardly visible, the video heads may be contaminated.



[a] Slightly contaminated
[b] Critically contaminated

If this happens, clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied). After checking the picture, if it is still "noisy", repeat the cleaning. (Do not repeat cleaning more than five times in one session.)

Caution
Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note
If the V8-25CLH cleaning cassette is not available in your area, consult your nearest Sony dealer.

Información sobre el mantenimiento y precauciones

Limpieza de las cabezas de vídeo

Para asegurar la grabación normal e imágenes claras, limpie las cabezas de vídeo. Cuando en el visor aparezca el indicador ⊗ en el modo CAMERA o las imágenes reproducidas sean "ruidosas" o difíciles de ver, es posible que las cabezas de vídeo estén contaminadas.

[a] Ligeramente contaminadas
[b] Seriamente contaminadas

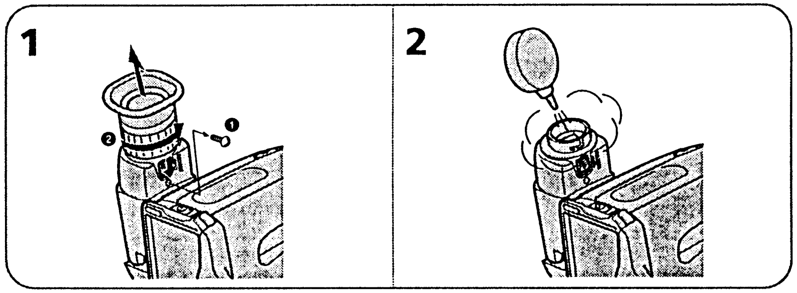
Cuando aparezcan estas imágenes, limpie las cabezas de vídeo con un cassette de limpieza V8-25CLH Sony (no suministrado). Después de la limpieza, si las imágenes siguen "ruidosas", repita la limpieza. (No repita la limpieza más de cinco veces en una sesión.)

Precaución
No utilice cassettes de limpieza de tipo húmedo adquiribles en tiendas del ramo, ya que podrían dañar las cabezas de vídeo.

Nota
Si el cassette de limpieza V8-25CLH no está disponible en su zona, consulte a un centro de servicio Sony.

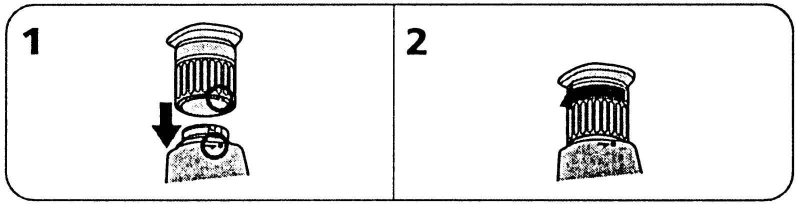
Removing Dust from inside the Viewfinder

(1) Remove the screw with a screwdriver (not supplied). Then, while sliding the RELEASE knob , turn the eyecup in the direction of the arrow and pull it out.
(2) Clean the surface with a commercially available blower.



To Reattach the Eyecup

(1) Align the groove on the eyecup with the • mark on the barrel.
(2) Turn the eyecup in the direction of the arrow. Then, replace the screw.



Caution
Do not remove any other screws. You may remove only the screw to remove the eyecup.

Para quitar el polvo del interior del visor

(1) Quite el tornillo con un destornillador (no suministrado). Después, gire el ocular en el sentido de la flecha mientras mantenga deslizado el mando RELEASE y tire del ocular.
(2) Limpie la superficie con un soplador adquirible en tiendas del ramo.

Para volver a colocar el ocular

(1) Alinee la ranura del ocular con la marca • del tubo.
(2) Gire el ocular en el sentido de la flecha. Después vuelva a colocar el tornillo.

Precaución
Quite sólo el tornillo necesario para separar el ocular. No quite ningún otro tornillo.

Maintenance Information and Precautions

Precautions

Camcorder Operation

- Operate the camcorder using 6.0 V (battery pack), or 7.5 V (AC power adaptor).
- For DC or AC operation, use only the recommended accessories.
- Should any solid object or liquid fall into the casing, unplug the camcorder and have it checked by your nearest Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF when not using the camera.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.

On Handling Tapes

Do not insert anything in the small holes on the rear of the cassette. These holes are used to sense the type of tape, thickness of tape and if the recording tab is out or in.

Camcorder Care

- When the camcorder is not to be used for a long time, disconnect the power source and remove the cassette. Periodically turn on the power, operate the camera and player sections and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean the camcorder body with a soft dry cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

AC Power Adaptor

Charging

- Use only for the specified battery pack. This unit cannot be used to charge a lithium ion type battery.
- Attach the battery pack firmly.
- Place the battery pack on a flat surface without vibration during charging.

Información sobre el mantenimiento y precauciones

Precauciones

Operación de la videocámara

- Alimente la videocámara con 6,0 V (batería) o 7,5 V (adaptador de alimentación de CA).
- Para alimentarla con CC o CA, utilice sólo los accesorios recomendados.
- Si dentro de la videocámara cae algún objeto sólido o líquido, desenchufe la videocámara y haga que sea revisada por su proveedor Sony más cercano antes de reutilizarla.
- Evite tratos bruscos o golpes. Tenga especial cuidado con el objetivo.
- Cuando no vaya a utilizar la videocámara, ponga el selector POWER en OFF.
- No utilice la videocámara envuelta, porque se recalentaría.
- Mantenga la videocámara alejada de campos magnéticos intensos y vibraciones mecánicas.

Cuidado del videocassette

No inserte nada en los pequeños orificios de la parte posterior del videocassette. Estos orificios se utilizan para detectar el tipo de cinta, su grosor, y si la lengüeta de grabación está o no deslizada.

Cuidados de la videocámara

- Cuando no vaya a utilizar la videocámara durante mucho tiempo, desconecte la fuente de alimentación y extraiga el videocassette. Conecte periódicamente la alimentación, haga funcionar las secciones de la videocámara y el reproductor, y reproduzca una cinta durante unos 3 minutos.
- Limpie el polvo del objetivo con un cepillo suave. Elimine las huellas dactilares con un paño suave.
- Limpie el cuerpo de la videocámara con un paño suave y seco, o ligeramente humedecido en una solución muy diluida de detergente. No emplee ningún tipo de disolvente ya que podría dañar el acabado.

Adaptador de alimentación de CA

Carga

- Empléelo solamente para cargar la batería especificada. Este adaptador no podrá emplearse para cargar una batería de tipo iones de litio.
- Fije firmemente la batería.
- Cologue la batería sobre una superficie plana sin vibraciones durante la carga.

Others

- Unplug the unit from the wall (mains) outlet when not in use for a long time. To disconnect the cord (mains lead), pull it out by the plug. Never pull the cord itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the AC power cord (mains lead) forcibly, or put a heavy object on it. This will damage the cord and may cause a fire or an electrical shock.
- Be sure that nothing metallic comes into contact with the metal parts of the connecting plate. If this happens, a short may occur and the unit may be damaged.
- Always keep the metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment because it will disturb AM reception and video operation.
- The unit becomes warm while in use. This is normal.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

The warranty that comes with your camcorder does not cover replacement or repair of parts or damage due to use of Ni-MH batteries.

If any difficulty should arise, unplug the unit and contact your nearest Sony dealer.

Otros

- Cuando no vaya a utilizar la unidad durante mucho tiempo, desenchúfela de la toma de la red. Para desconectar el cable de alimentación (de la red), tire del enchufe. No tire nunca del propio cable.
- No emplee la unidad con el cable dañado, después de haberla dejado caer, o cuando esté dañada.
- No doble a la fuerza el cable de alimentación de CA (red), ni coloque objetos pesados sobre él, ya que podría dañar el cable y provocar incendios o descargas eléctricas.
- Cerciórese de que ningún objeto metálico entre en contacto con las partes metálicas de la placa conectora, ya que se podría producir un cortocircuito que dañaría la unidad.
- Mantenga siempre limpios los contactos metálicos.
- No desarme la unidad.
- No golpee ni deje caer la unidad.
- Cuando esté empleando la unidad, especialmente durante la carga, manténgala alejada de receptores de AM y equipos de vídeo porque perturbaría la recepción de AM y la operación de vídeo.
- La unidad se calentará durante el empleo. Pero esto es normal.
- No coloque la unidad en lugares:
  - Extremadamente cálidos o fríos
  - Polvorientos o sucios
  - Muy húmedos
  - Sujetos a vibraciones

La garantía que se suministra con la videocámara no cubre el reemplazo ni las reparaciones de partes o los daños debido al uso de baterías de Ni-MH.

Si surge alguna dificultad, desenchufe la unidad y póngase en contacto con su proveedor Sony.

Using Your Camcorder Abroad

Each country has its own electricity and TV colour systems. Before using your camcorder abroad, check the following points:

Power Sources

You can use your camcorder in any country with the supplied AC power adaptor within 110 V to 240 V AC, 50/60 Hz.

Difference in Colour Systems

This camcorder is a PAL system-based camcorder. If you want to view the playback picture on a TV, it must be a PAL system-based TV or a SECAM system-based TV with PAL-SECAM transcoder. Check the following alphabetical list.

PAL-system countries
Australia, Austria, Belgium, China, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system country
Brazil

PAL-N system countries
Argentina, Paraguay, Uruguay

NTSC system countries
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

SECAM system countries
Bulgaria, Czech Republic, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Slovak Republic, Ukraine, etc.

Utilización de la videocámara en el extranjero

Cada país posee su propio sistema de suministro eléctrico y sistema de televisión en color. Antes de utilizar su videocámara en el extranjero, verifique los puntos siguientes:

Fuentes de alimentación

Usted podrá utilizar su videocámara con el adaptador de alimentación de CA suministrado en cualquier país donde la tensión de la red sea de 110 a 240 V CA, 50/60 Hz.

Diferencia en los sistemas de color

Esta videocámara está basada en el sistema PAL. Si desea ver la imagen reproducida en un televisor, éste deberá estar basado en el sistema PAL o el sistema SECAM con transcodificador PAL-SECAM. Compruebe la lista siguiente en orden alfabético.

Países con el sistema PAL
Alemania, Australia, Austria, Bélgica, China, Dinamarca, España, Finlandia, Gran Bretaña, Holanda, Hong Kong, Italia, Kuwait, Malasia, Noruega, Nueva Zelanda, Portugal, Singapur, Suecia, Suiza, Tailandia, etc.

País con el sistema PAL M
Brasil

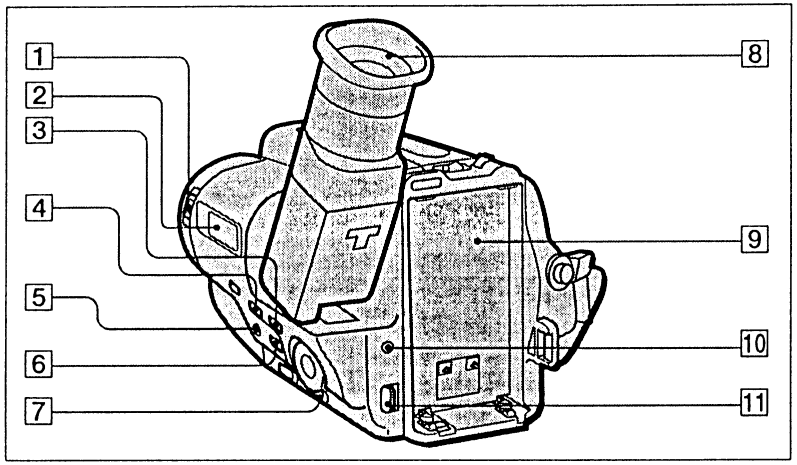
Países con el sistema PAL N
Argentina, Paraguay, Uruguay

Países con el sistema NTSC
Bolivia, Canadá, Centroamérica, Colombia, Corea, Chile, Ecuador, EE.UU., Filipinas, Islas Bahamas, Jamaica, Japón, México, Perú, Surinam, Taiwan, Venezuela, etc.

Países con el sistema SECAM
Bulgaria, Francia, Guyana, Hungría, Irán, Iraq, Mónaco, Polonia, República de Checoslovaquia, República de Eslovaquia, Rusia, Ucrania, etc.

Identifying the Parts

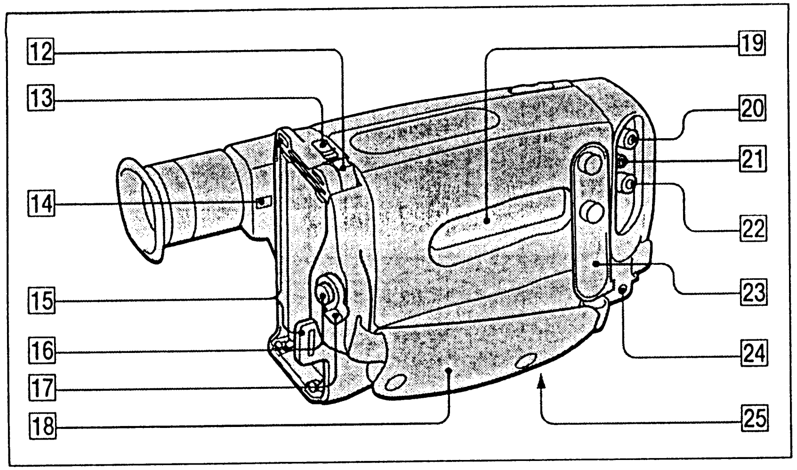
Identificación de las partes



[1] **POWER switch (p. 12, 22)**
[2] **Display window (CCD-TR520E only) (p. 68)**
[3] **TIME(NEXT) button (p. 28, 40)**
[4] **DATE(+) button (p. 28, 40)**
[5] **COUNTER RESET button (p. 15)**
[6] **TITLE button (p. 33)**
[7] **STEADY SHOT/16:9 WIDE mode switch (CCD-TR520E only) (p. 34, 35)**
[8] **Eyecup (p. 17, 49)**
[9] **Battery mounting surface (p. 10)**
[10] **LANC Ⓛ control jack**
Connect the LANC Ⓛ connecting cable to a wired remote control unit such as an editing controller. In this case, set the COMMANDER mode to OFF (p. 36). Ⓛ stands for Local Application Control Bus sytem. The Ⓛ control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the connectors indicated as CONTROL L or REMOTE.
[11] **BATT (battery) release knob (p. 10)**

[1] **Selector de alimentación (POWER) (pág. 12, 22)**
[2] **Visualizador (CCD-TR520E solamente) (pág. 68)**
[3] **Tecla de ajuste de la hora [TIME(NEXT)] (pág. 28, 40)**
[4] **Tecla de ajuste de la fecha [DATE(+)] (pág. 28, 40)**
[5] **Tecla de puesta a cero del contador (COUNTER RESET) (pág. 15)**
[6] **Tecla del título (TITLE) (pág. 33)**
[7] **Selector de modo de videofilmación estable/pantalla amplia (STEADY SHOT/ 16:9 WIDE) (CCD-TR520E solamente) (pág. 34, 35)**
[8] **Ocular (pág. 17, 49)**
[9] **Superficie de montaje de la batería (pág. 10)**
[10] **Toma de control remoto (LANC Ⓛ)**
Conecte un cable conector LANC Ⓛ a una unidad de control remoto alámbrico como un controlador de edición. En este caso, ajuste el modo de COMMANDER a OFF (pág. 36)
Ⓛ significa sistema de control de bus de aplicación local. La toma Ⓛ se emplea para controlar el movimiento de la cinta de equipos de vídeo y dispositivos periféricos conectados a la misma. Esta toma posee la misma función que los conectores indicados como CONTROL L o REMOTE.
[11] ***Mando de expulsión de la batería (BATT)* (pág. 10)**

1-25



12 **Power zoom lever (p. 16)**

13 **EJECT knob (p. 11)**

14 **Eyecup release knob (p. 49)**

15 **Hooks for shoulder strap (p. 64)**

16 **START/STOP button (p. 12)**

17 **STANDBY switch (p. 12)**

18 **Grip strap (p. 18)**

19 **Cassette compartment (p. 11)**

20 **VIDEO OUT jack (p. 20)**

21 **RFU DC OUT (RFU adaptor DC out) jack**

22 **AUDIO OUT jack (p. 20)**

23 **Jack cover**

24 **MIC (microphone) jack**
Connect an optional external microphone. This jack also accepts a "plug-in-power" microphone.

25 **Tripod receptacle (p. 18)**
Attach a tripod (not supplied) here.

12 **Palanca del zoom motorizado (pág. 16)**

13 **Tecla de expulsión del videocassette (EJECT) (pág. 11)**

14 **Mando de liberación del ocular (pág. 49)**

15 **Ganchos para la bandolera (pág. 64)**

16 **Tecla de inicio/parada (START/STOP) (pág. 12)**

17 **Interruptor de espera (STANDBY) (pág. 12)**

18 **Correa de la empuñadura (pág. 18)**

19 **Compartimiento del videocassette (pág. 11)**

20 **Toma de salida de vídeo (VIDEO OUT) (pág. 20)**

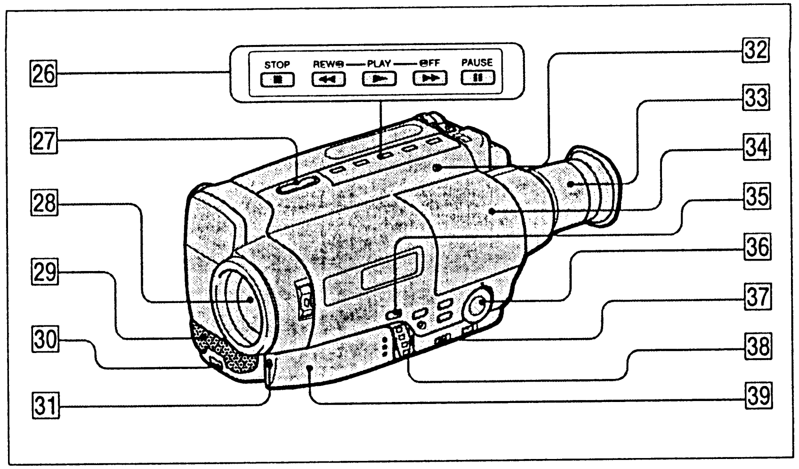
21 **Toma de salida de CC para el adaptador de RFU (RFU DC OUT)**

22 **Toma de salida de audio (AUDIO OUT) (pág. 20)**

23 **Cubierta de tomas**

24 **Toma para micrófono (MIC)**
Conecte un micrófono externo ocional. Esta toma también acepta un micófono "alimentado a través de la clavija".

25 **Receptáculo para trípode (pág. 18)**
Fije un trípode (no suministrado).



26 **Tape transport buttons (p. 22, 23)**
■ STOP
◀◀ REW (rewind)
▶ PLAY (playback)
▶▶ FF (fast forward)
❚❚ PAUSE
These buttons will function in PLAYER mode.

27 **EDITSEARCH button (p. 19)**

28 **Lens cover**

29 **Built-in microphone**

30 **Remote sensor (p. 66)**

31 **Camera recording/battery lamp**

32 **DEW lamp (p. 47)**

33 **Viewfinder adjustment ring (p. 13)**

34 **Viewfinder (p. 13)**

35 **BACK LIGHT button (p. 31)**

36 **PROGRAM AE dial (p. 29)**

37 **START/STOP MODE switch (p. 12, 14, 32)**

38 **Mode switches (p. 36)**

39 **Lithium battery compartment (p. 39)**

26 **Teclas de transporte de la cinta (pág. 22, 23)**
Parada (■ STOP)
Rebobinado (◀◀ REW)
Reproducción (▶ PLAY)
Avance rápido (▶▶ FF)
Pausa (❚❚ PAUSE)
Estas teclas funcionarán en el modo PLAYER.

27 **Tecla de búsqueda para edición (EDITSEARCH) (pág. 19)**

28 **Cubierta del objetivo**

29 **Micrófono incorporado**

30 **Sensor de control remoto (pág. 66)**

31 **Lámpara indicadora de videofilmación/ estado de la batería**

32 **Lámpara de humedad (DEW) (pág. 47)**

33 **Anillo de ajuste de la lenta del visor (pág. 13)**

34 **Visor (pág. 13)**

35 **Tecla de videofilmación a contraluz (BACK LIGHT) (pág. 31)**

36 **Dial de exposición automática programada (PROGRAM AE) (pág. 29)**

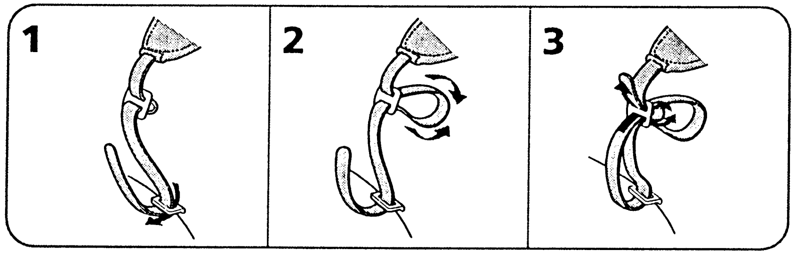
37 **Selector de modo de inicio/parada de la videofilmación (START/STOP MODE) (pág. 12, 14, 32)**

38 **Selectores de modo (pág. 36)**

39 **Compartimiento de la pila de litio (pág. 39)**

Attaching the shoulder strap
Attach the supplied shoulder strap to the hooks for the shoulder strap ([15] on page 62).

Fijación de la bandolera
Fije la bandolera suministrada a los ganchos para la misma ([15] de la página 62).

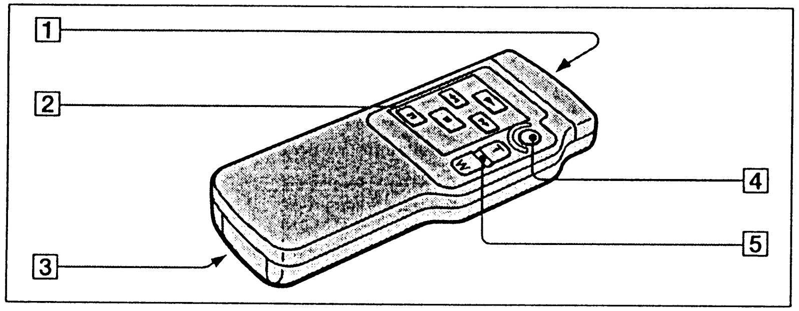


Remote Commander

The buttons that have the same name on the Remote Commander and on the camcorder function identically.

Telemando

Las teclas del telemando con el mismo nombre que las de la videocámara poseen idéntica función.



[1] **Transmitter**
Point toward the remote sensor to control the camcorder after turning on the POWER switch on the camcorder.

[2] **Tape transport buttons (p. 22, 23)**

[3] **R6 (size AA) battery holder (p. 65)**

[4] **START/STOP button**

[5] **Power zoom button**
The zooming speed is unchangeable on the Remote Commander.

[1] **Transmisor**
Para controlar la videocámara con el telemando, conecte la alimentación de la videocámara y apunte este transmisor hacia el sensor remoto.

[2] **Teclas de transporte de la cinta (pág. 22, 23)**

[3] **Compartimiento de las pilas R6 (tamaño AA) (pág. 65)**

[4] **Tecla de inicio/parada (START/STOP)**

[5] **Tecla del zoom motorizado**
La velocidad del zoom no podrá cambiarse en el telemando.

Preparing the Remote Commander

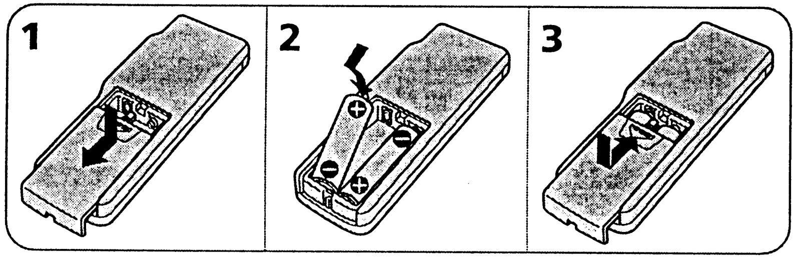
To use the Remote Commander, you must insert two R6 (size AA) batteries. Use the supplied R6 (size AA) batteries.

(1) Remove the battery cover from the Remote Commander.
(2) Insert both of the R6 (size AA) batteries with correct polarity.
(3) Put the battery cover back onto the Remote Commander.

Preparación del telemando

Para utilizar el telemando, deberá colocar dos pilas R6 (tamaño AA). Utilice las pilas R6 (tamaño AA) suministradas.

(1) Quite la tapa del compartimiento de las pilas en el telemando.
(2) Inserte las dos pilas R6 (tamaño AA) con la polaridad correcta.
(3) Cierre la tapa.



Note on battery life
The batteries for the Remote Commander last about 6 months under normal operation. When the batteries become weak or dead, the Remote Commander does not work.

To avoid damage from possible battery leakage
Remove the batteries when you will not use the Remote Commander for a long time.

Nota sobre la duración de las pilas
Las pilas en el telemando durarán unos 6 meses en condiciones normales de funcionamiento. Cuando las pilas se debiliten o agoten, el telemando no funcionará.

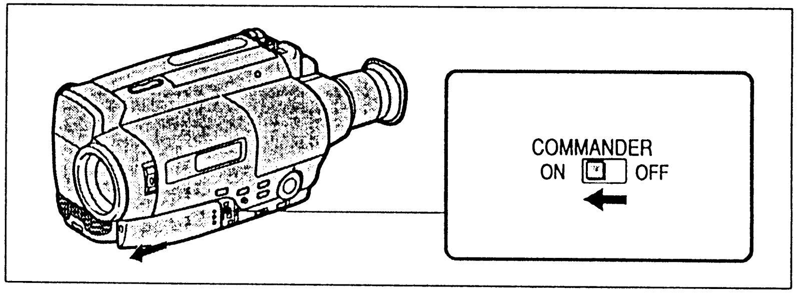
Para evitar el daño que podría causar el derrame del electrólito de las pilas
Cuando no vaya a utilizar el telemando durante mucho tiempo, extraiga las pilas.

Using the Remote Commander

Make sure that the COMMANDER mode is set to ON (p. 36).

Utilización del telemando

Cerciórese de activar (ON) el modo de telemando (COMMANDER) (pág. 36).

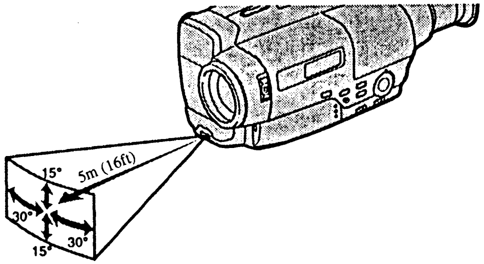


Remote Control Direction

Aim the Remote Commander to the remote sensor within the range as shown below.

Área controlable mediante el telemando

Apunte con el telemando hacia el sensor de control remoto dentro de la gama que se muestra en la ilustración.



Notes on the Remote Commander

- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor on the camcorder and the Remote Commander.
- This camcorder works at commander mode VTR 2. The commander modes (1, 2, and 3) are used to distinguish this camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR at commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VCR with black paper.

Notas sobre el telemando

- Mantenga el sensor de control remoto alejado de luces intensas, como la directa del sol u otras de iluminación. De lo contrario, el telemando no funcionará adecuadamente.
- Asegúrese de que no haya ningún obstáculo entre el telemando y el sensor remoto.
- Esta videocámara funciona con señales del modo de mando VTR 2. El modo de mando (1, 2 y 3) se utiliza para distinguir esta videocámara de otras videograbadoras Sony para evitar una operación errónea de control remoto. Si utiliza otra videograbadora Sony en el modo de mando VTR 2, se recomienda cambiarlo o cubrir el sensor de control remoto de la videograbadora con un papel negro.

To Watch the Demonstration

You can watch a brief demonstration of pictures with titles.
If the demonstration appears when you turn on the camcorder for the first time, exit the Demo mode to use your camcorder.

To enter Demo mode

(1) Eject the cassette and slide the POWER switch to OFF.
(2) Turn STANDBY up.
(3) While holding down ▶ PLAY, slide the POWER switch to CAMERA. Demonstration starts. The demonstration stops when you insert the cassette.

Note that once you enter Demo mode, this mode is retained as long as the lithium battery is in place. Therefore, demonstration starts automatically 10 minutes later every time you slide the POWER switch to CAMERA, or after you eject the cassette.

To exit Demo mode

(1) Slide the POWER switch to OFF.
(2) Turn STANDBY up.
(3) While holding down ■ STOP, slide the POWER switch to CAMERA.

Para ver la demostración

Usted podrá ver una corta demostración de imágenes con títulos.
Si aparece la demostración al conectar la alimentación de la videocámara por primera vez, salga del modo de demostración para utilizar la videocámara.

Para entrar en el modo de demostración

(1) Expulse el videocassette y deslice el selector POWER hasta OFF.
(2) Gire STANDBY hacia arriba.
(3) Manteniendo presionada ▶ PLAY hacia abajo, deslice el selector POWER hasta CAMERA. La demostración comenzará y cesará cuando inserte un videocassette.

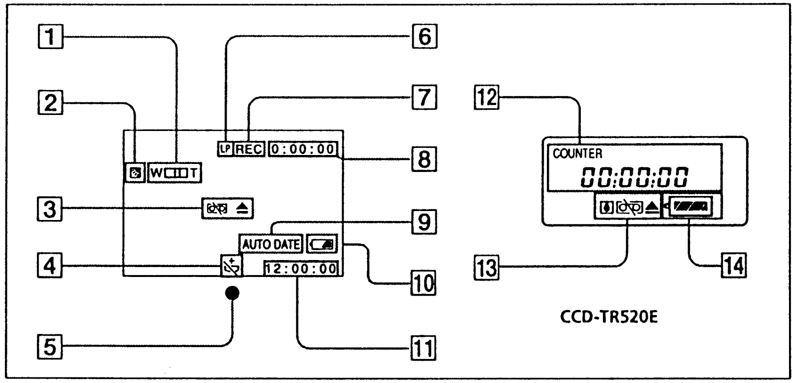
Tenga en cuenta que una vez que haya entrado en el modo de demostración, este modo se mantendrá mientras la pila de litio esté en su lugar. Por lo tanto, la demostración comenzará automáticamente después de 10 minutos cada vez que deslice el selector POWER hasta CAMERA, o después de expulsar el videocassette.

Para salir del modo de demostración

(1) Deslice el selector POWER hasta OFF.
(2) Gire STANDBY hacia arriba.
(3) Manteniendo presionada ■ STOP hacia abajo, deslice el selector POWER hasta CAMERA.

Operation Indicators

The indicators in the display window appear in CAMERA mode only.



1 Power zoom indicator (p. 17)
CCD-TR520E only

2 Backlight indicator (p. 31)

3 Warning indicator (p. 69)

4 Lithium battery indicator (p. 38)

5 Recording lamp/battery lamp (p. 12)

6 Recording in LP mode (p. 12)

7 Tape transport mode (p. 12)

8 Tape counter (p. 15)

9 AUTO DATE indicator (p. 12)

10 Remaining battery indicator (p. 42)

11 Date, Time or Title (p. 28, 33)

12 Tape counter (p. 15)
Date or time indicator (p. 28)
CCD-TR520E only

13 Warning indicator (p. 69)
CCD-TR520E only

14 Remaining battery indicator (p. 42)
CCD-TR520E only

Indicadores de operación

Los indicadores aparecerán en el visualizador en el modo CAMERA solamente.

1 Indicador del zoom motorizado (pág. 17)
CCD-TR520E solamente

2 Indicador de videofilmación a contraluz (pág. 31)

3 Indicador de advertencia (pág. 69)

4 Indicador de estado de la pila de litio (pág. 38)

5 Lámpara indicadora de videofilmación/ estado de la batería (pág. 12)

6 Grabación en el modo LP (pág. 12)

7 Modo de transporte de la cinta (pág. 12)

8 Contador de la cinta (pág. 15)

9 Indicador de grabación automática de la fecha (AUTO DATE) (pág. 12)

10 Indicador de carga restante de la batería (pág. 42)

11 Fecha, hora o título (pág. 28, 33)

12 Contador de la cinta (pág. 15)
Indicador de fecha o de hora (pág. 28)
CCD-TR520E solamente

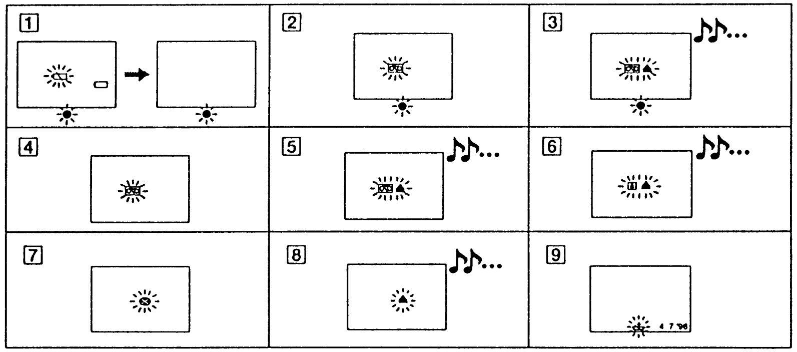
13 Indicador de advertencia (pág. 69)
CCD-TR520E solamente

14 Indicador de carga restante de la batería (pág. 42)
CCD-TR520E solamente

Warning Indicators

All indicators appear only when you use the camcorder in CAMERA mode.
If indicators flash in the viewfinder, or a caution lamp on the camcorder flashes, check the following:

♪: You can hear the beep sound when BEEP is set to ON (p. 36).



1 Battery Remaining
Slow flashing: The battery is weak.
Fast flashing: The battery is dead.

2 The tape is near the end.

3 The tape has run out.

4 No tape has been inserted.

5 The tab on the tape is out (red) (p. 11).

6 Moisture condensation has occurred (p. 47).
≜ indicator appears only when the cassette is inserted.

7 The video heads may be contaminated (p. 48).

8 Some other trouble has occurred.
Disconnect the power source and contact your Sony dealer or local authorized facility.

9 The lithium battery is weak or the lithium battery is not installed (p. 38).
This indicator flashes just only after powering on.

Indicadores de advertencia

Todos los indicadores aparecerán solamente cuando utilice la videocámara en el modo CAMERA. Si parpadean indicadores en el visor, o una lámpara de precaución en la videocámara, verifique los puntos siguientes:

♪: Si ajusta BEEP a ON, podrá oir el pitido (pág. 36).

1 Carga restante de la batería
Parpadeo lento: La batería está débil.
Parpadeo rápido: La batería está agotada.

2 La cinta está a punto de finalizar.

3 La cinta ha finalizado.

4 No hay videocassette insertado.

5 La lengüeta del videocassette está al descubierto (roja) (pág. 11).

6 Se ha producido condensación de humedad (pág. 47).
El indicador ≜ aparecerá solamente cuando esté insertado un videocassette.

7 Las cabezas de vídeo pueden estar contaminadas (pág. 48).

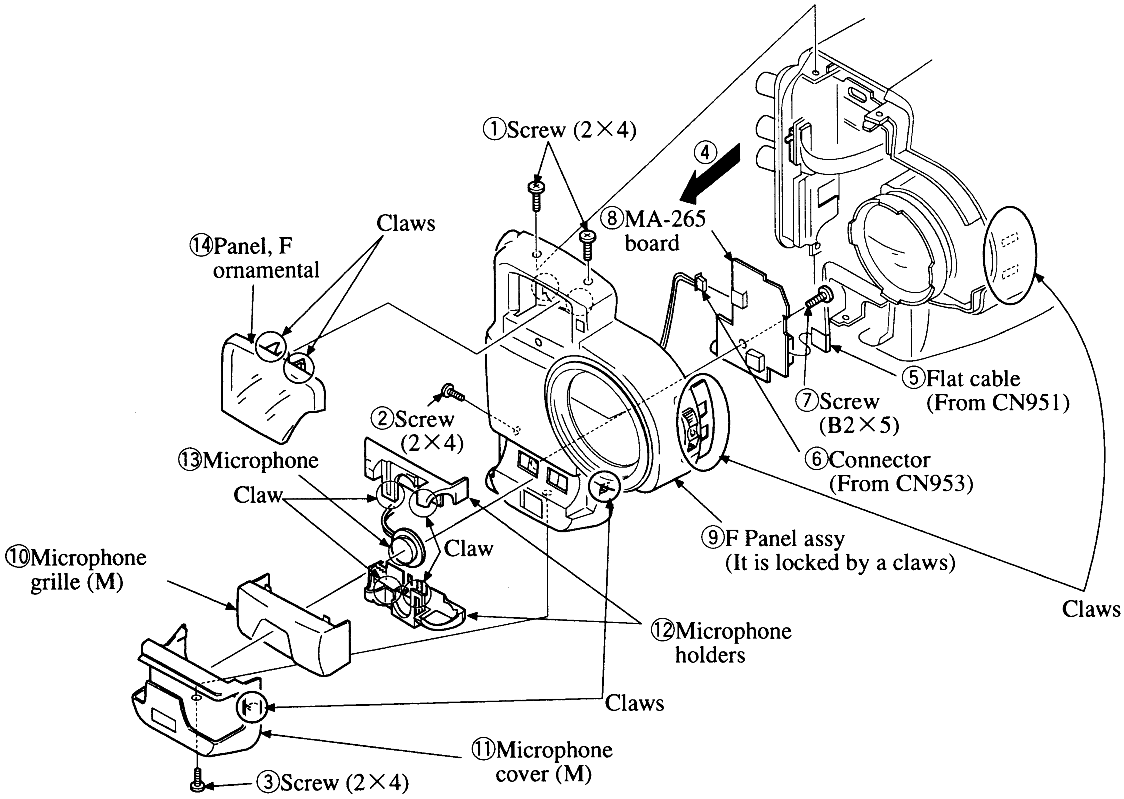
8 Se ha producido algún otro problema.
Desconecte la fuente de alimentación y póngase en contacto con su proveedor Sony o una estación de servicio autorizada local.

9 La pila de litio está débil, o no está colocada (pág. 38).
Este indicador parpadeará solamente después de conectarse la alimentación.

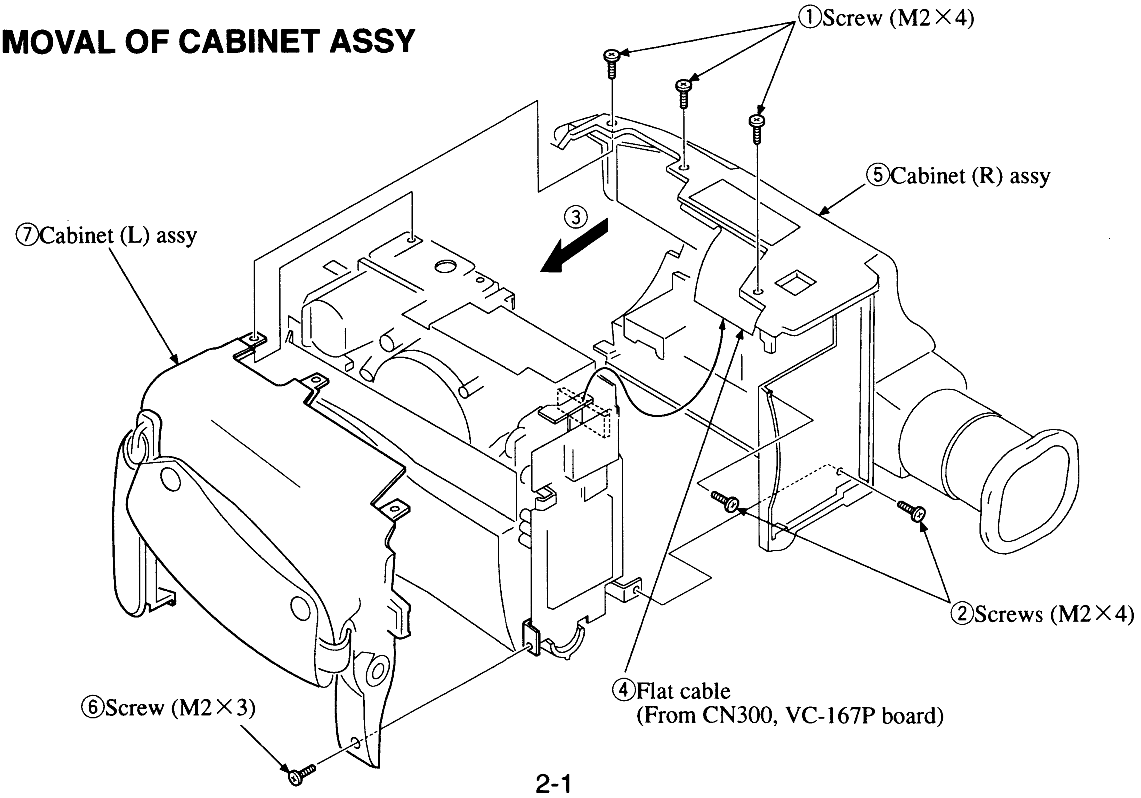
SECTION 2
DISASSEMBLY

NOTE : Follow the disassembly procedure in the numerical order given.

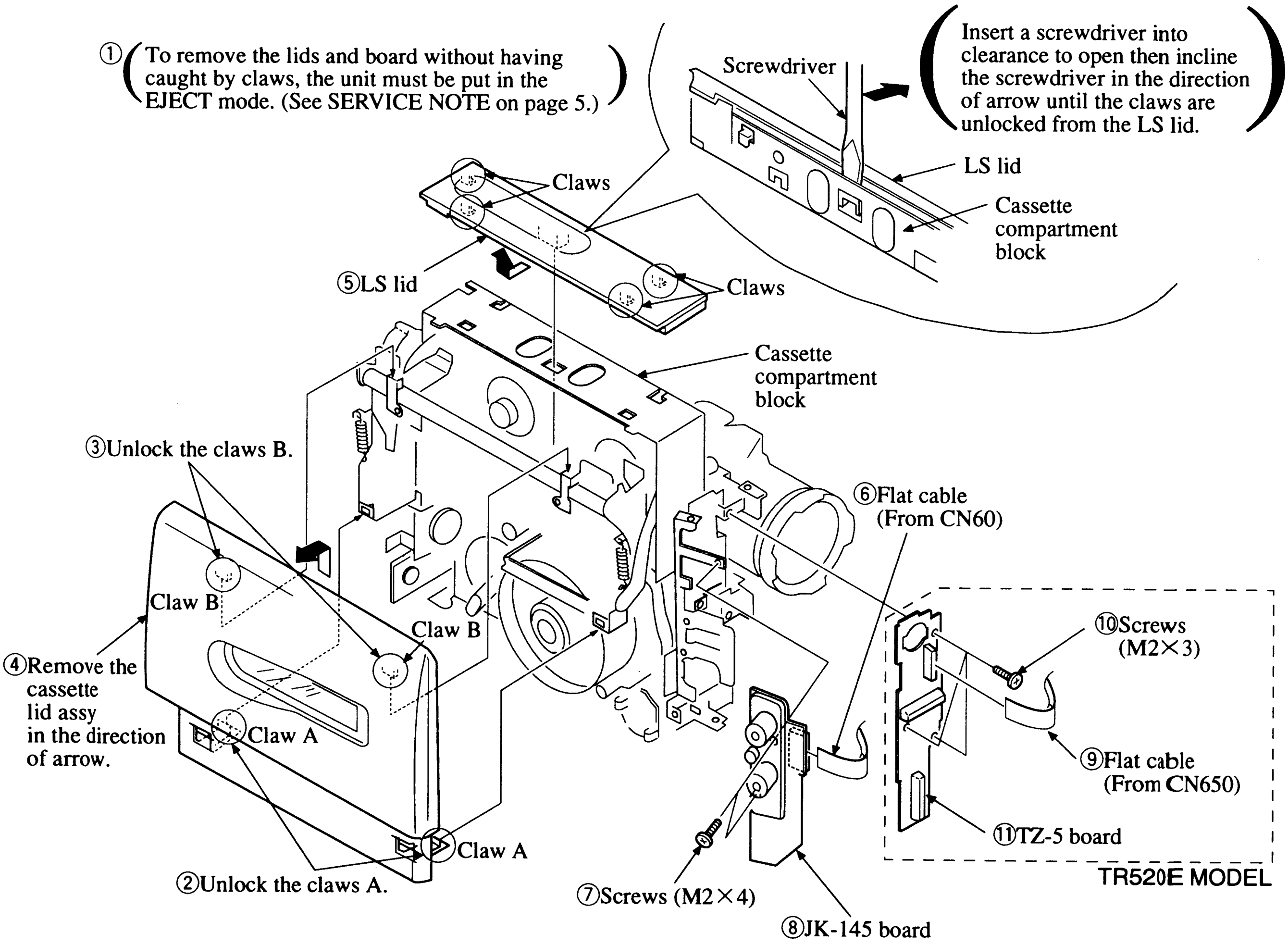
2-1. REMOVAL OF F PANEL ASSY, MA-265 BOARD and MICROPHONE


①Screw (2×4)
④
⑧MA-265 board
Claws
⑭Panel, F ornamental
⑤Flat cable (From CN951)
⑦Screw (B2×5)
⑥Connector (From CN953)
②Screw (2×4)
⑬Microphone
Claw
Claw
⑨F Panel assy (It is locked by a claws)
⑩Microphone grille (M)
Claws
⑫Microphone holders
Claws
⑪Microphone cover (M)
③Screw (2×4)

2-2. REMOVAL OF CABINET ASSY


①Screw (M2×4)
⑤Cabinet (R) assy
③
⑦Cabinet (L) assy
②Screws (M2×4)
④Flat cable (From CN300, VC-167P board)
⑥Screw (M2×3)

2-3. REMOVAL OF CASSETTE LID ASSY, LS LID, JK-145 and TZ-5 BOARD


①(To remove the lids and board without having caught by claws, the unit must be put in the EJECT mode. (See SERVICE NOTE on page 5.))

(Insert a screwdriver into clearance to open then incline the screwdriver in the direction of arrow until the claws are unlocked from the LS lid.)

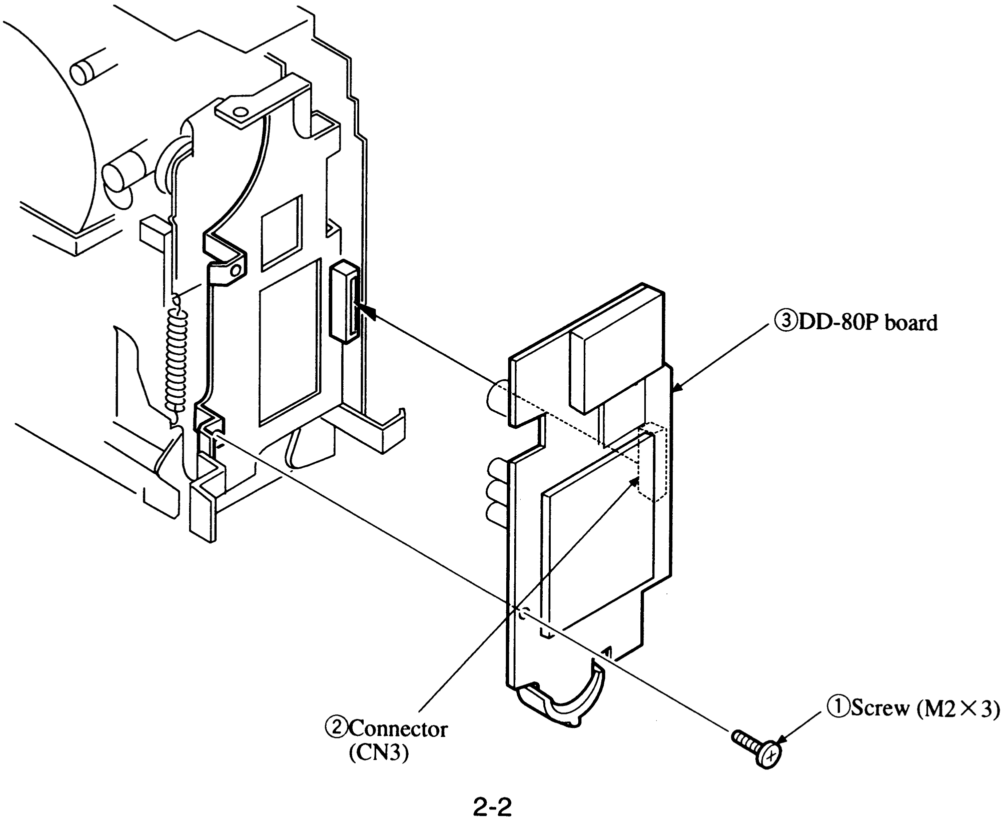
②Unlock the claws A.

③Unlock the claws B.

④Remove the cassette lid assy in the direction of arrow.

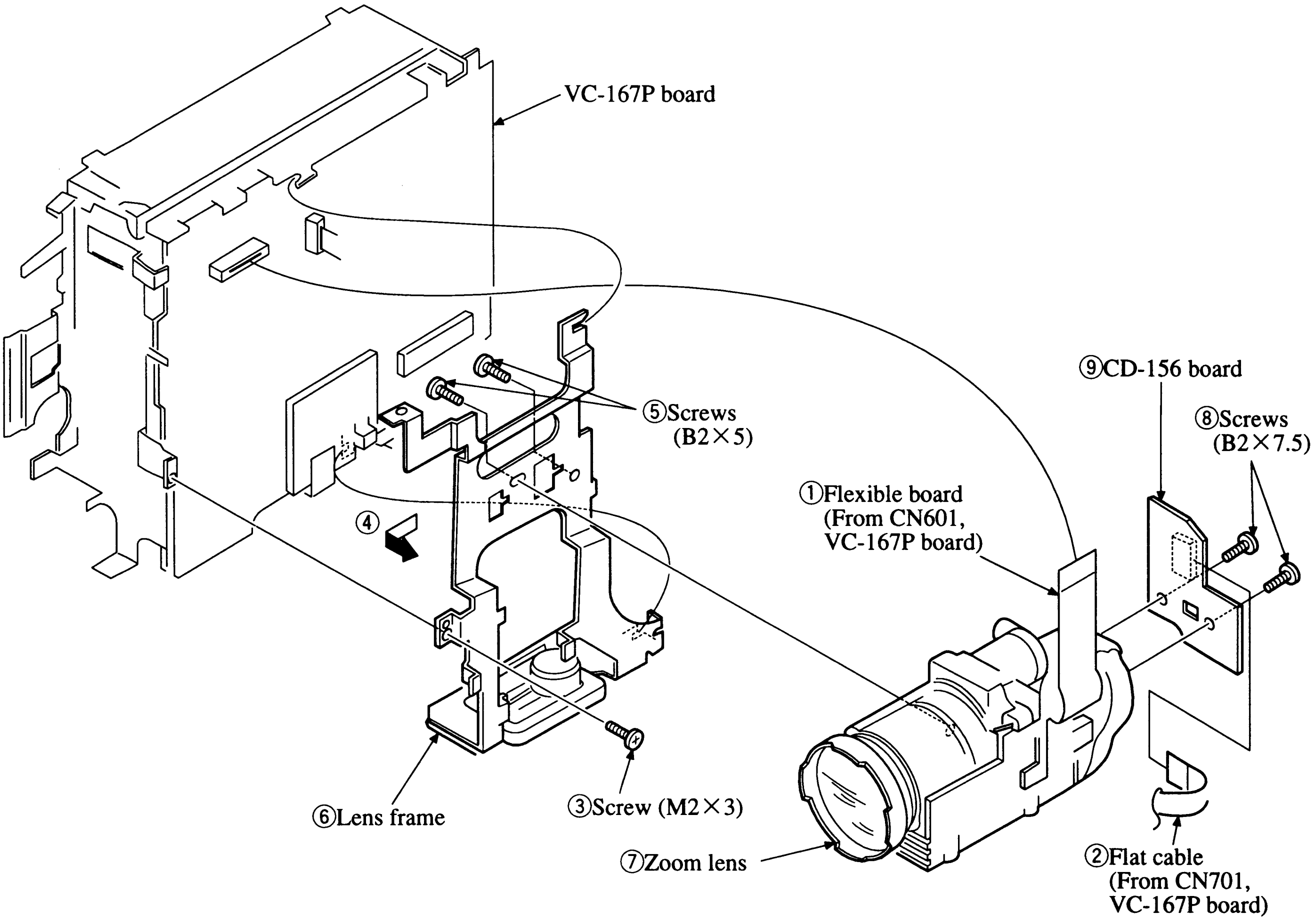
Screwdriver
LS lid
Cassette compartment block
Claws
⑤LS lid
Claws
Cassette compartment block
Claw B
Claw B
Claw A
Claw A
⑥Flat cable (From CN60)
⑦Screws (M2×4)
⑧JK-145 board
⑨Flat cable (From CN650)
⑩Screws (M2×3)
⑪TZ-5 board
TR520E MODEL

2-4. REMOVAL OF DD-80P BOARD

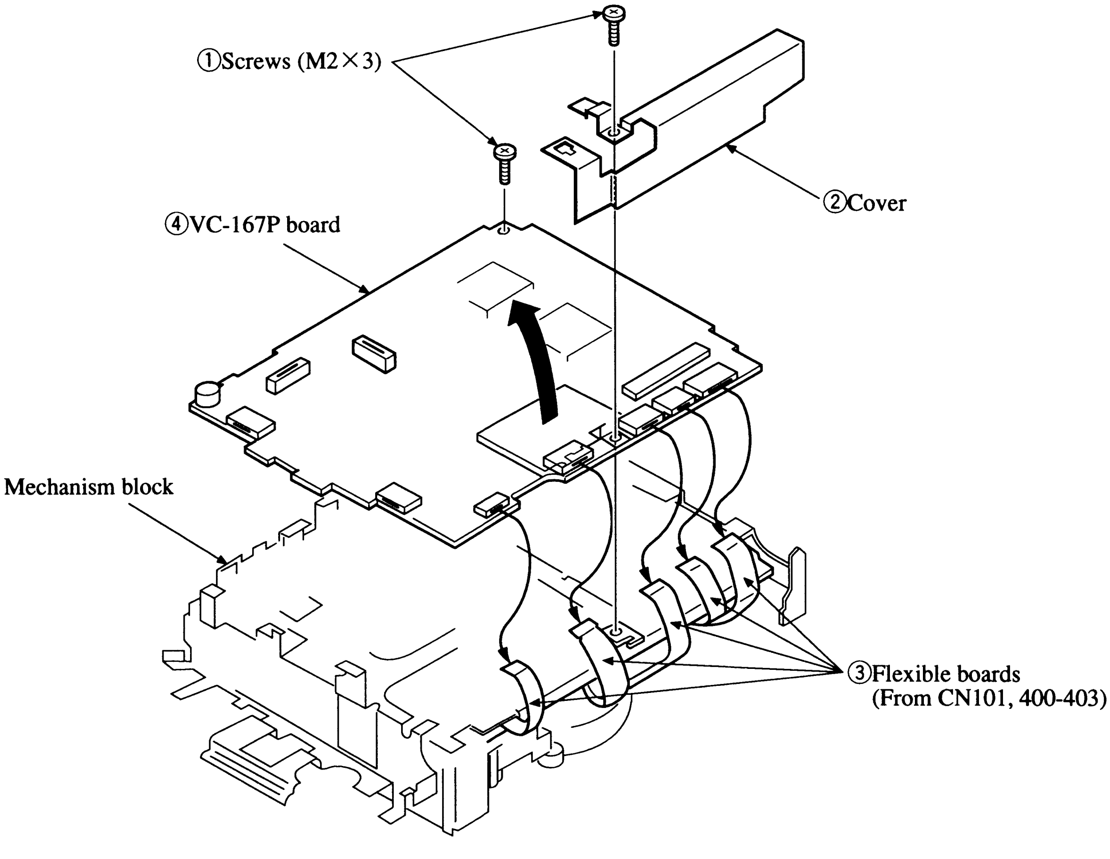


③DD-80P board
②Connector (CN3)
①Screw (M2×3)

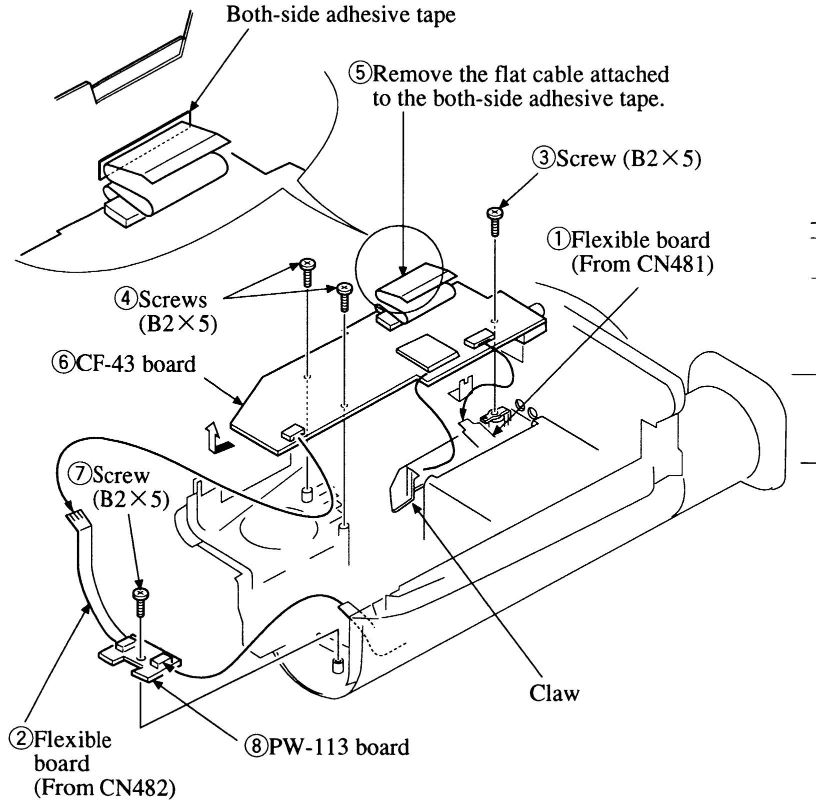
2-5. REMOVAL OF ZOOM LENS and CD-156 BOARD


VC-167P board
⑨CD-156 board
⑧Screws
(B2×7.5)
⑤Screws
(B2×5)
①Flexible board
(From CN601,
VC-167P board)
④
⑥Lens frame
③Screw (M2×3)
⑦Zoom lens
②Flat cable
(From CN701,
VC-167P board)

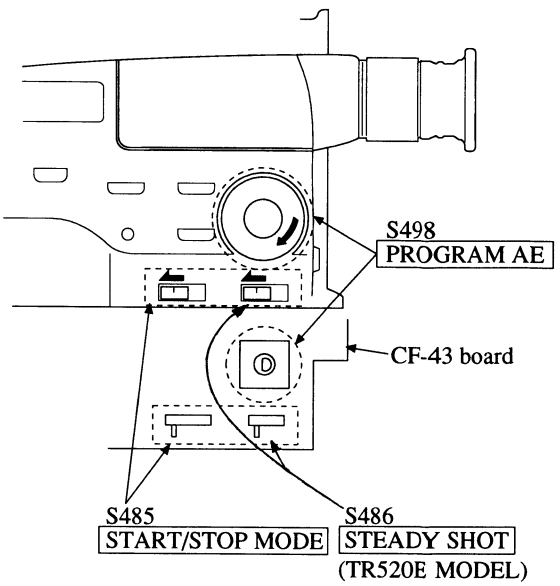
2-6. REMOVAL OF VC-167P BOARD


①Screws (M2×3)
②Cover
④VC-167P board
Mechanism block
③Flexible boards
(From CN101, 400-403)

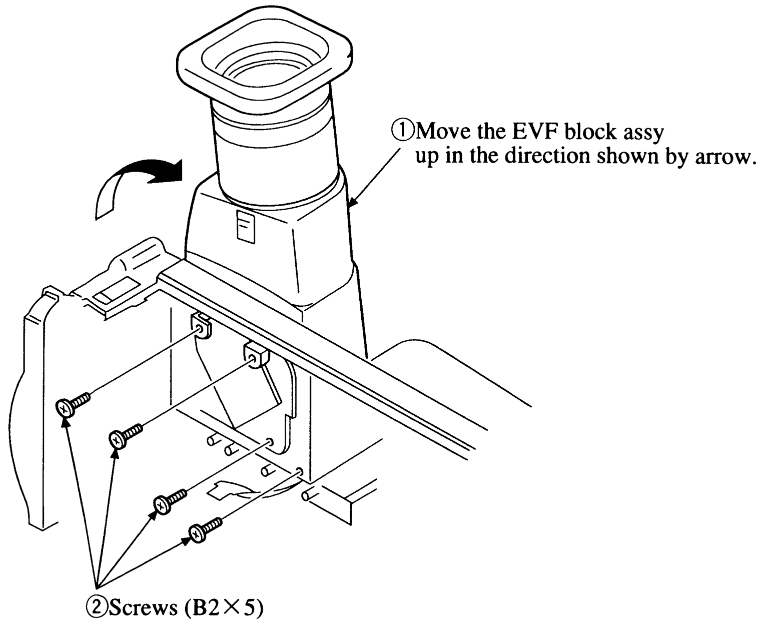
2-7. REMOVAL OF CF-43 BOARD and PW-113 BOARD

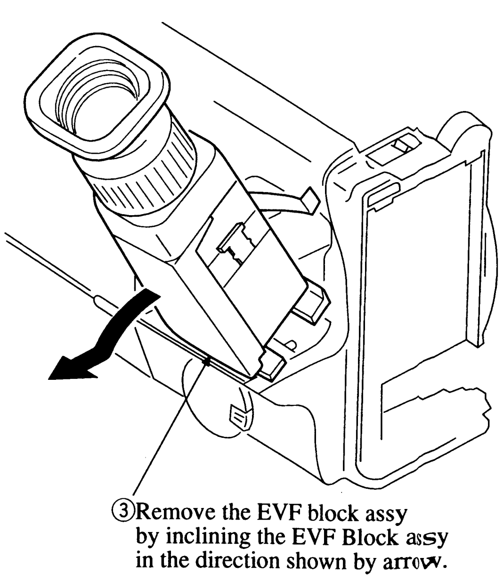

Both-side adhesive tape
⑤Remove the flat cable attached to the both-side adhesive tape.
③Screw (B2×5)
①Flexible board (From CN481)
④Screws (B2×5)
⑥CF-43 board
⑦Screw (B2×5)
Claw
②Flexible board (From CN482)
⑧PW-113 board

Note) When attaching the CF-43 board, Set the switches in the positions as showen.

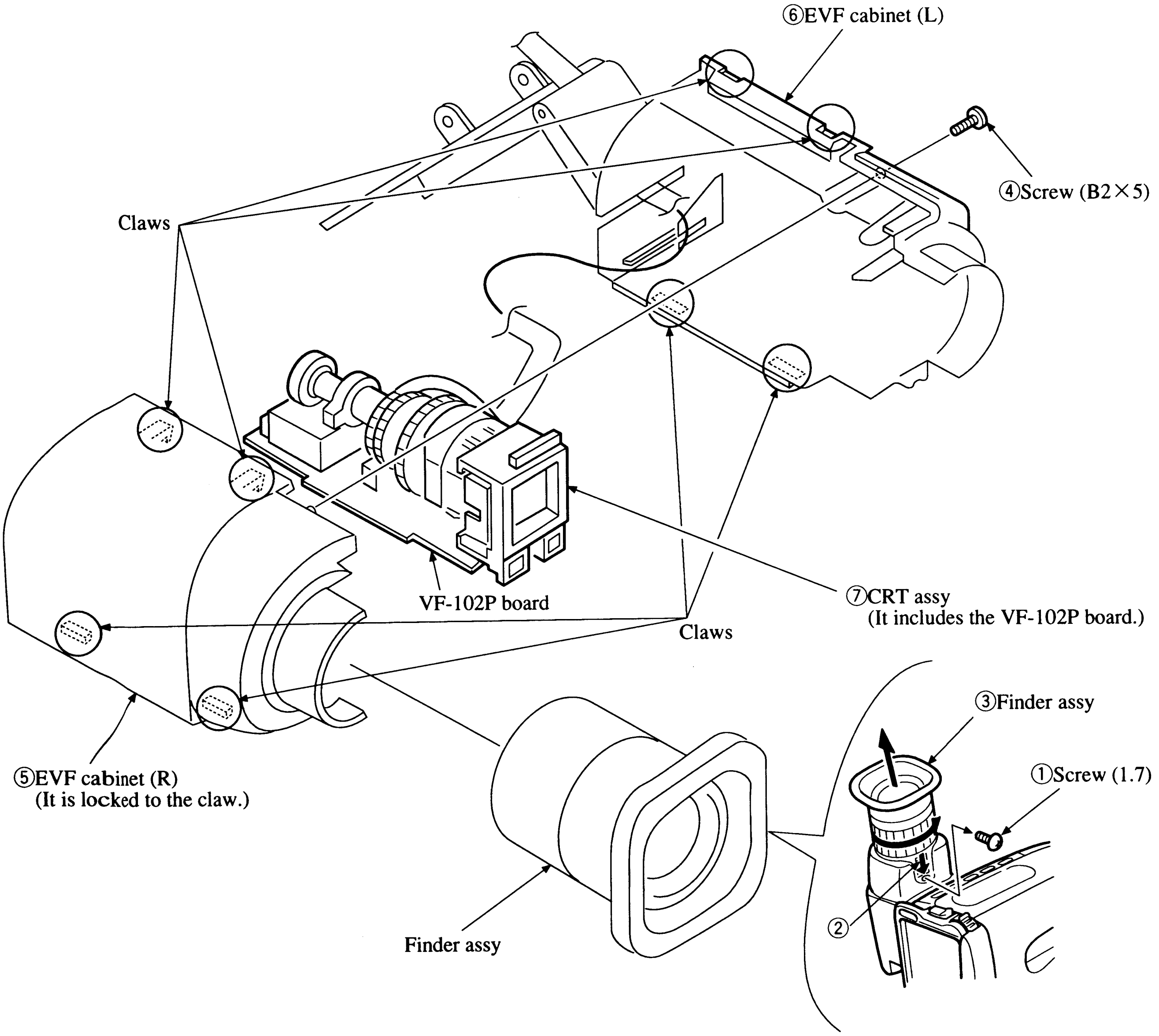

S498
PROGRAM AE
CF-43 board
S485
START/STOP MODE
S486
STEADY SHOT
(TR520E MODEL)

2-8. REMOVAL OF EVF BLOCK ASSY


①Move the EVF block assy up in the direction shown by arrow.
②Screws (B2×5)

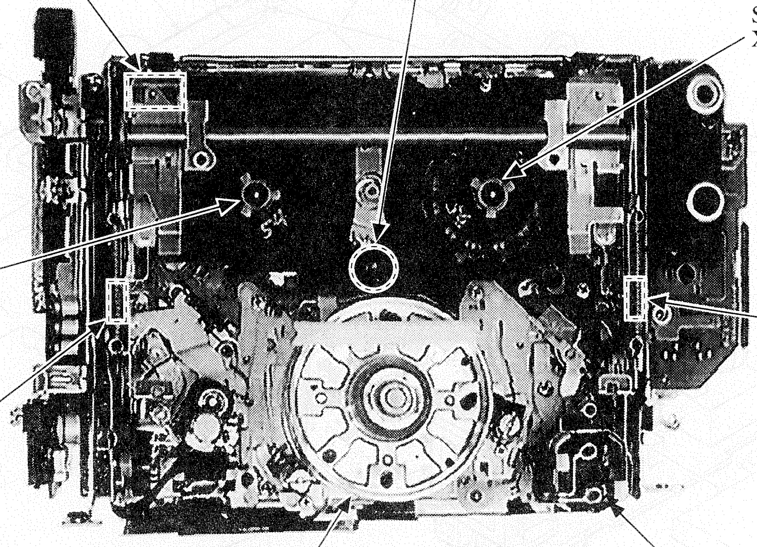

③Remove the EVF block assy by inclining the EVF Block assy in the direction shown by arrow.

2-9. REMOVAL OF CRT ASSY and VF-102P BOARD


⑥EVF cabinet (L)
④Screw (B2×5)
Claws
VF-102P board
Claws
⑦CRT assy
(It includes the VF-102P board.)
③Finder assy
①Screw (1.7)
⑤EVF cabinet (R)
(It is locked to the claw.)
②
Finder assy

2-10. INTERNAL VIEWS

—LEFT SIDE—



S001
REC PROOF SWITCH
1-692-614-11

D001
DIODE GL453S
8-719-988-42

S REEL DECK ASSY
X-3945-397-1

T REEL DECK ASSY
X-3945-398-1

Q002
PHOTO TRANSISTOR PT4850F
8-729-907-25

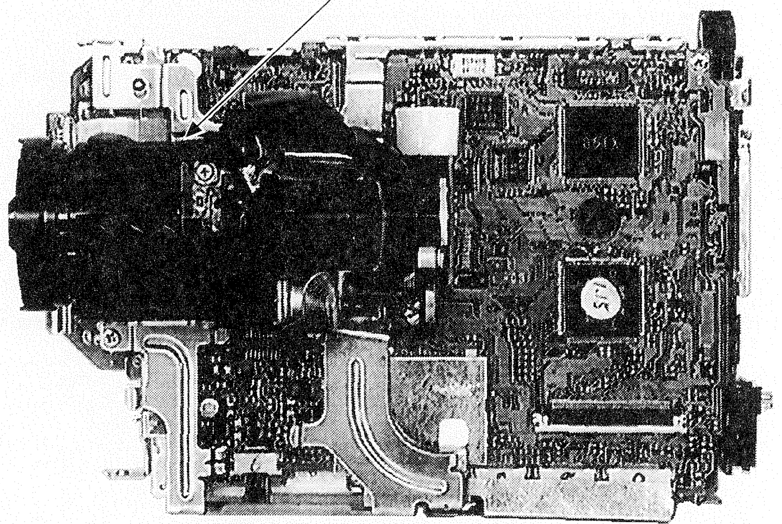
Q001
PHOTO TRANSISTOR
PT4850F
8-729-907-25

M903
LOADING MOTOR
X-3945-401-1

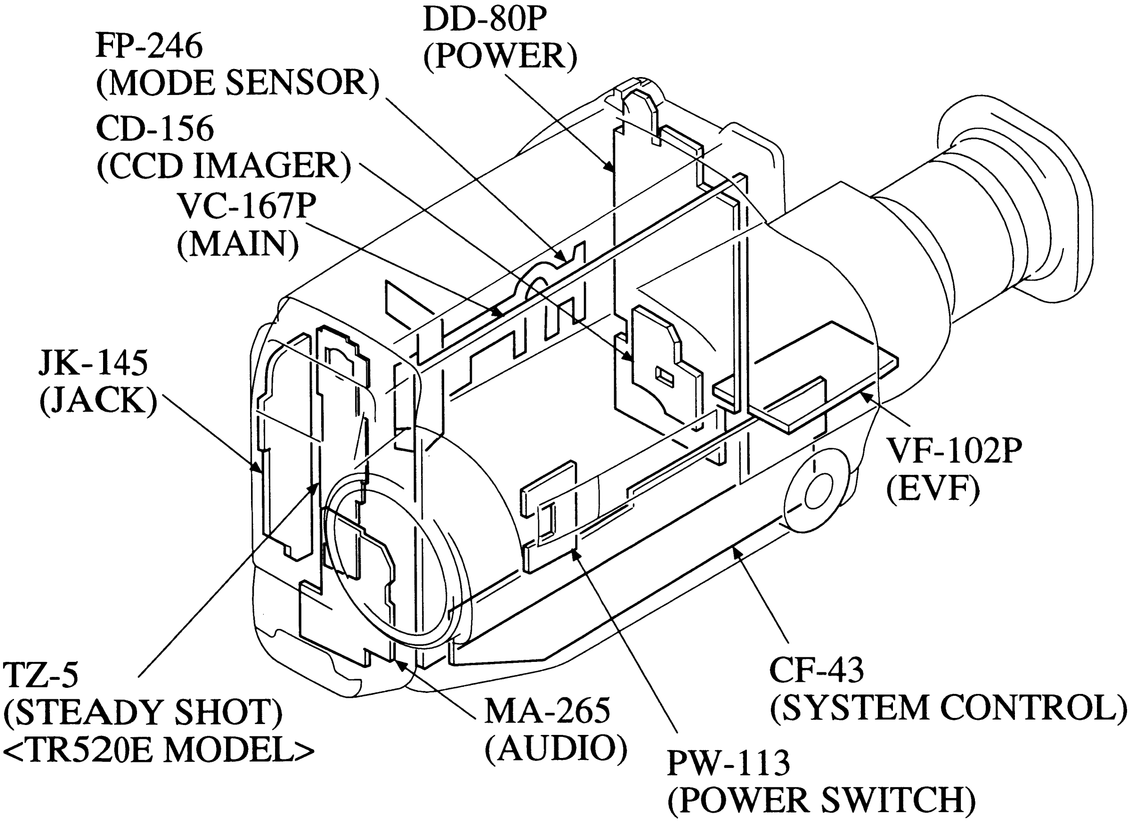
M901
DRUM BLOCK ASSY (DGH-OC2A-R)
A-7048-806-A

—RIGHT SIDE—

ZOOM LENS (VCL-6310WA) (TR340E MODEL)
1-547-833-11
ZOOM LENS (VCL-5412WB) (TR520E MODEL)
1-547-739-21

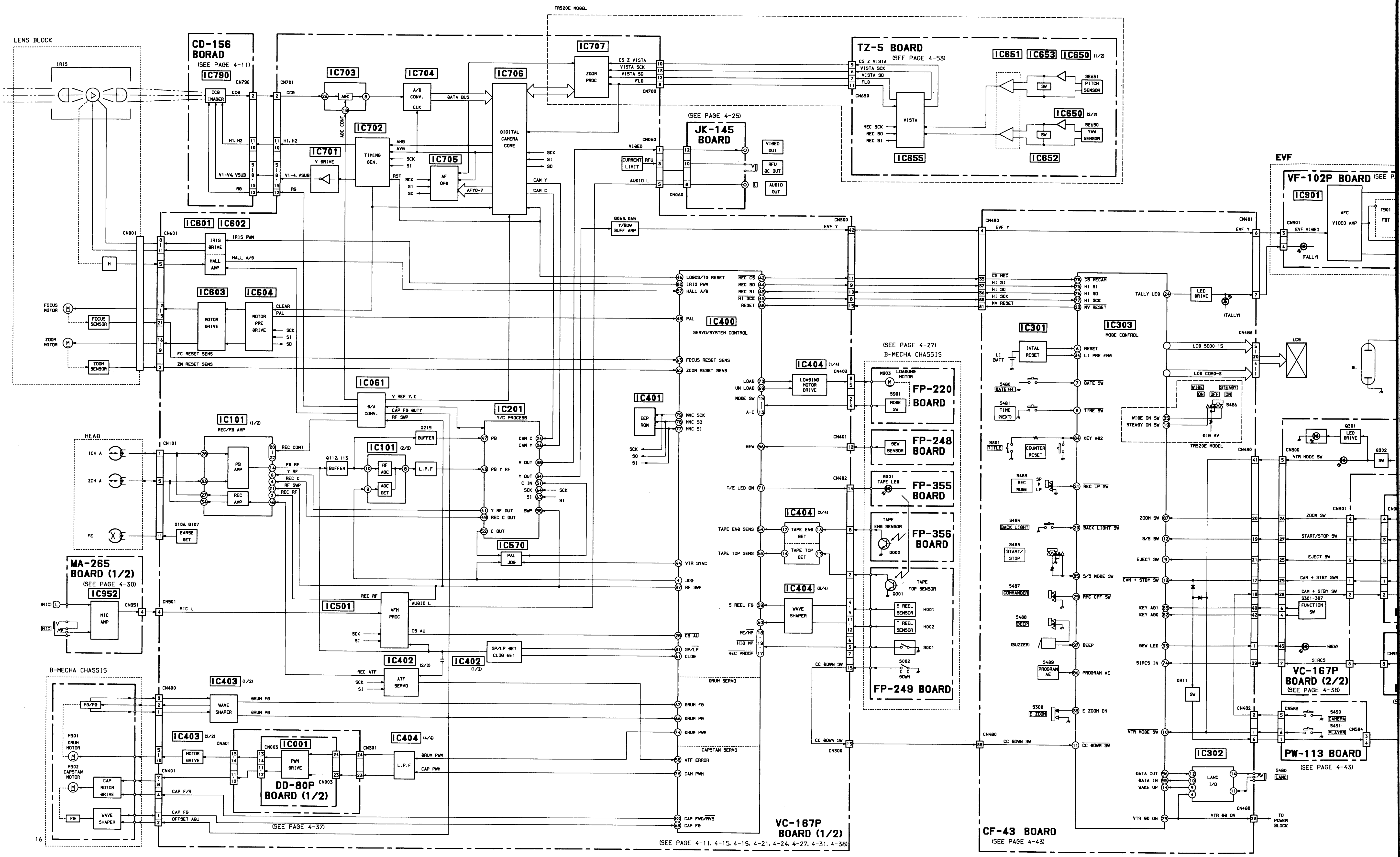


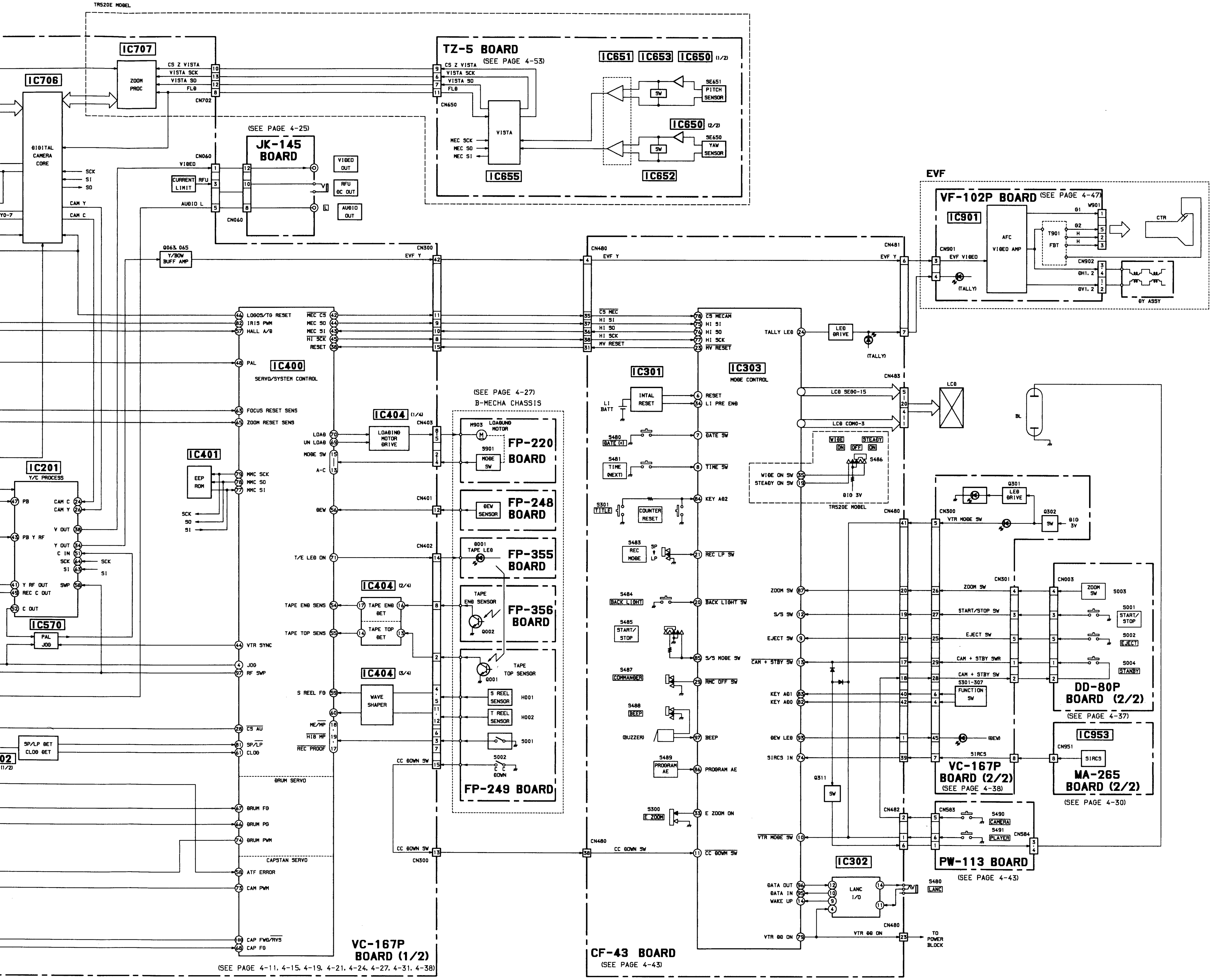
2-11. CIRCUIT BOARDS LOCATION


DD-80P
(POWER)
FP-246
(MODE SENSOR)
CD-156
(CCD IMAGER)
VC-167P
(MAIN)
JK-145
(JACK)
VF-102P
(EVF)
TZ-5
(STEADY SHOT)
<TR520E MODEL>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

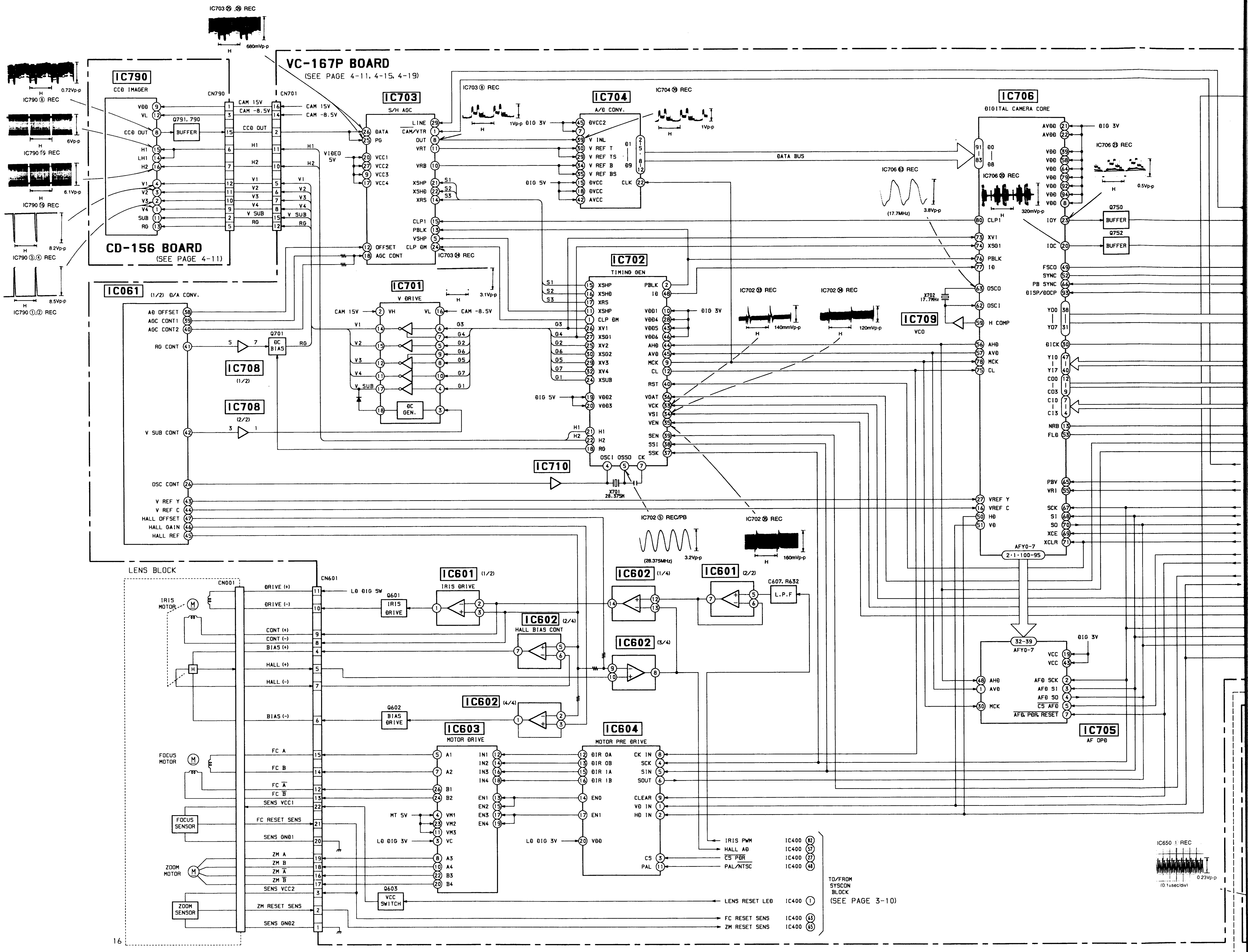
SECTION 3
BLOCK DIAGRAMS

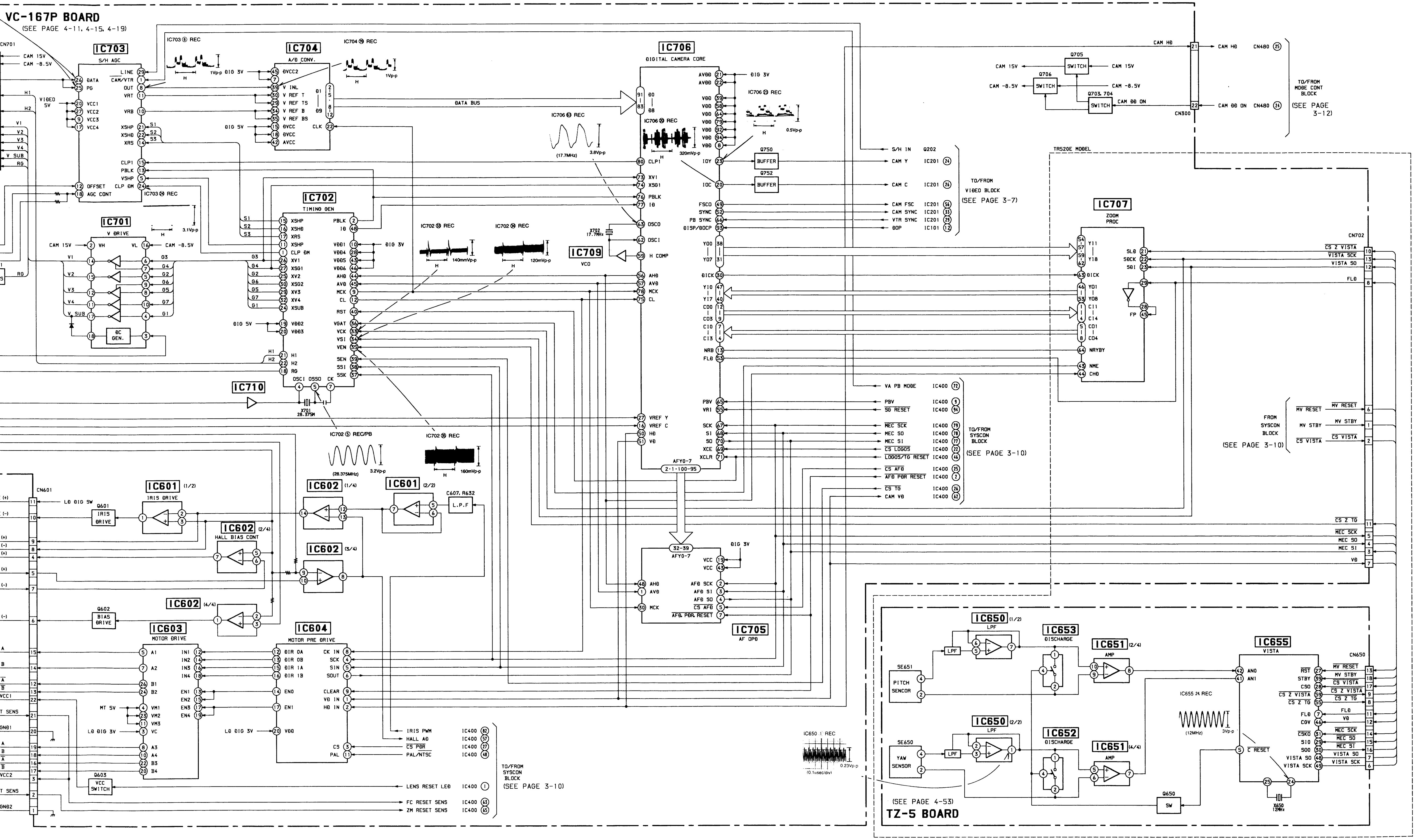
3-1. OVERALL BLOCK DIAGRAM


TR520E MODEL
LENS BLOCK
IRIS
FOCUS MOTOR
FOCUS SENSOR
ZOOM MOTOR
ZOOM SENSOR
CD-156 BORAD (SEE PAGE 4-11)
IC790
CCD IMAGER
IC703
AGC
IC704
A/D CONV.
DATA BUS
IC706
DIGITAL CAMERA CORE
IC707
ZOOM PROC
IC702
TIMING GEN.
IC701
V DRIVE
IC705
AF DPD
JK-145 BOARD (SEE PAGE 4-25)
VIDEO OUT
RFU DC OUT
AUDIO OUT
CURRENT LIMIT
TZ-5 BOARD (SEE PAGE 4-53)
VISTA
IC655
IC651
IC653
IC650 (1/2)
IC650 (2/2)
IC652
SE651 PITCH SENSOR
SE650 YAW SENSOR
Q063, 065 Y/BDW BUFF AMP
IC601
IC602
IRIS DRIVE
HALL AMP
IC603
IC604
MOTOR DRIVE
MOTOR PRE DRIVE
IC400
SERVO/SYSTEM CONTROL
IC061
D/A CONV.
IC201
Y/C PROCESS
IC101 (1/2)
REC/PB AMP
IC101 (2/2)
RF AGC
AGC DET
L.P.F
BUFFER
HEAD
1CH A
2CH A
FE
Q106, Q107 EARSE DET
IC401
EEP ROM
IC570
PAL JOG
MA-265 BOARD (1/2) (SEE PAGE 4-30)
IC952
MIC AMP
IC501
AFM PROC
IC402 (2/2)
ATF SERVO
IC402 (1/2)
SP/LP DET CLOG DET
IC403 (1/2)
WAVE SHAPER
IC403 (2/2)
MOTOR DRIVE
IC001
PWM DRIVE
DD-80P BOARD (1/2)
IC404 (4/4)
L.P.F
B-MECHA CHASSIS
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
CAP MOTOR DRIVE
WAVE SHAPER
IC404 (1/4)
LOADING MOTOR DRIVE
IC404 (2/4)
TAPE END DET
TAPE TOP DET
IC404 (3/4)
WAVE SHAPER
VC-167P BOARD (1/2) (SEE PAGE 4-11, 4-15, 4-19, 4-21, 4-24, 4-27, 4-31, 4-38)
(SEE PAGE 4-37)
(SEE PAGE 4-27) B-MECHA CHASSIS
FP-220 BOARD
FP-248 BOARD
FP-355 BOARD
FP-356 BOARD
FP-249 BOARD
CF-43 BOARD (SEE PAGE 4-43)
IC301
INTAL RESET
IC303
MODE CONTROL
IC302
LANC I/O
EVF
VF-102P BOARD
IC901
AFC VIDEO AMP
LCD
VC-167P BOARD (2/2) (SEE PAGE 4-38)
PW-113 BOARD (SEE PAGE 4-43)
TO POWER BLOCK
16

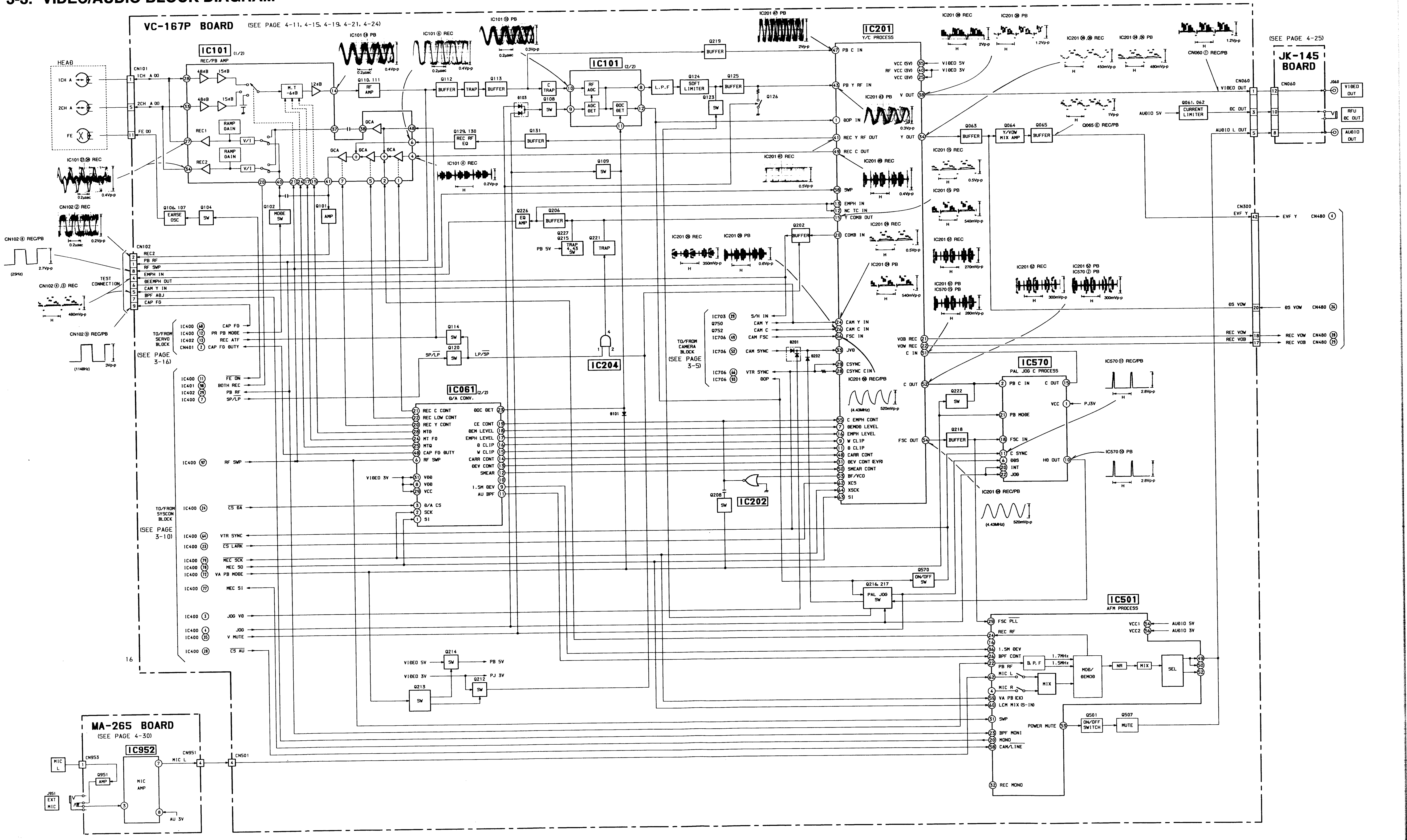

TR520E MODEL
IC707
ZOOM PROC
CS Z VISTA
VISTA SCK
VISTA SO
FLD
CN702
IC706
DIGITAL CAMERA CORE
SCK
SI
SO
CAM Y
CAM C
YO-7
(SEE PAGE 4-25)
JK-145 BOARD
CN060
VIDEO
CURRENT LIMIT
RFU
AUDIO L
VIDEO OUT
RFU DC OUT
AUDIO OUT
L
Q063, 065
Y/DOW BUFF AMP
TZ-5 BOARD
(SEE PAGE 4-53)
CN650
IC651
IC653
IC650 (1/2)
IC650 (2/2)
SE651 PITCH SENSOR
SE650 YAW SENSOR
SW
VISTA
MEC SCK
MEC SO
MEC SI
IC655
IC652
CN300
EVF Y
IC400
SERVO/SYSTEM CONTROL
LOGOS/TG RESET
IRIS PWM
HALL A/D
MEC CS
MEC SO
MEC SI
HI SCK
RESET
PAL
FOCUS RESET SENS
ZOOM RESET SENS
LOAD
UN LOAD
MODE SW
A-C
DEW
T/E LED ON
TAPE END SENS
TAPE TOP SENS
VTR SYNC
JOG
RF SWP
S REEL FG
ME/MP
HI8 MP
REC PROOF
CS AU
SP/LP
CLOG
DRUM SERVO
DRUM FG
DRUM PG
DRUM PWM
CAPSTAN SERVO
ATF ERROR
CAM PWM
CAP FWD/RVS
CAP FG
IC401
EEP ROM
MMC SCK
MMC SO
MMC SI
IC201
Y/C PROCESS
PB
PB Y RF
CAM C
CAM Y
V OUT
Y OUT
C IN
SWP
Y RF OUT
REC C OUT
C OUT
IC570
PAL JOG
SP/LP DET
CLOG DET
02
(1/2)
IC404 (1/4)
LOADING MOTOR DRIVE
CN403
IC404 (2/4)
TAPE END DET
TAPE TOP DET
IC404 (3/4)
WAVE SHAPER
CN401
CN402
CC DOWN SW
VC-167P BOARD (1/2)
(SEE PAGE 4-11, 4-15, 4-19, 4-21, 4-24, 4-27, 4-31, 4-38)
(SEE PAGE 4-27)
B-MECHA CHASSIS
M903 LOADING MOTOR
S901 MODE SW
FP-220 BOARD
DEW SENSOR
FP-248 BOARD
D001 TAPE LED
FP-355 BOARD
TAPE END SENSOR
Q002
FP-356 BOARD
Q001
TAPE TOP SENSOR
S REEL SENSOR
H001
T REEL SENSOR
H002
S001
S002
C C DOWN
FP-249 BOARD
CN480
CN481
CS MEC
HI SI
HI SO
HI SCK
MV RESET
IC301
INTAL RESET
LI BATT
IC303
MODE CONTROL
CS MECAM
RESET
LI PRE END
S480 DATE (+)
DATE SW
S481 TIME (NEXT)
TIME SW
S301 TITLE
COUNTER RESET
KEY AD2
S483 REC MODE
SP LP
REC LP SW
S484 BACK LIGHT
BACK LIGHT SW
S485 START/STOP
S/S MODE SW
S487 COMMANDER
RMC OFF SW
S488 BEEP
(BUZZER)
BEEP
S489 PROGRAM AE
PROGRAM AE
S300 E ZOOM
E ZOOM ON
CC DOWN SW
CF-43 BOARD
(SEE PAGE 4-43)
TALLY LED
LED DRIVE
(TALLY)
CN483
LCD SEG0-15
LCD COM0-3
LCD
BL
WIDE ON OFF
STEADY ON
S486
WIDE ON SW
STEADY ON SW
DIG 3V
TR520E MODEL
ZOOM SW
S/S SW
EJECT SW
CAM + STBY SW
KEY AD1
KEY AD0
DEW LED
SIRCS IN
Q311
SW
VTR MODE SW
IC302
DATA OUT
DATA IN
WAKE UP
LANC I/O
S480 LANC
VTR DD ON
TO POWER BLOCK
EVF
VF-102P BOARD (SEE PAGE 4-47)
IC901
CN901
EVF VIDEO
(TALLY)
AFC VIDEO AMP
T901 FBT
G1
G2
H
W901
CTR
CN902
DH1, 2
DV1, 2
DY ASSY
Q301 LED DRIVE
Q302 SW
DIG 3V
CN300
CN301
START/STOP SW
CAM + STBY SWR
S301-307 FUNCTION SW
(DEW)
SIRCS
VC-167P BOARD (2/2)
(SEE PAGE 4-38)
CN003
ZOOM SW S003
S001 START/STOP
S002 EJECT
S004 STANBY
DD-80P BOARD (2/2)
(SEE PAGE 4-37)
IC953
CN951
SIRCS
MA-265 BOARD (2/2)
(SEE PAGE 4-30)
CN482
CN583
S490 CAMERA
S491 PLAYER
CN584
PW-113 BOARD
(SEE PAGE 4-43)

3-2. CAMERA BLOCK DIAGRAM

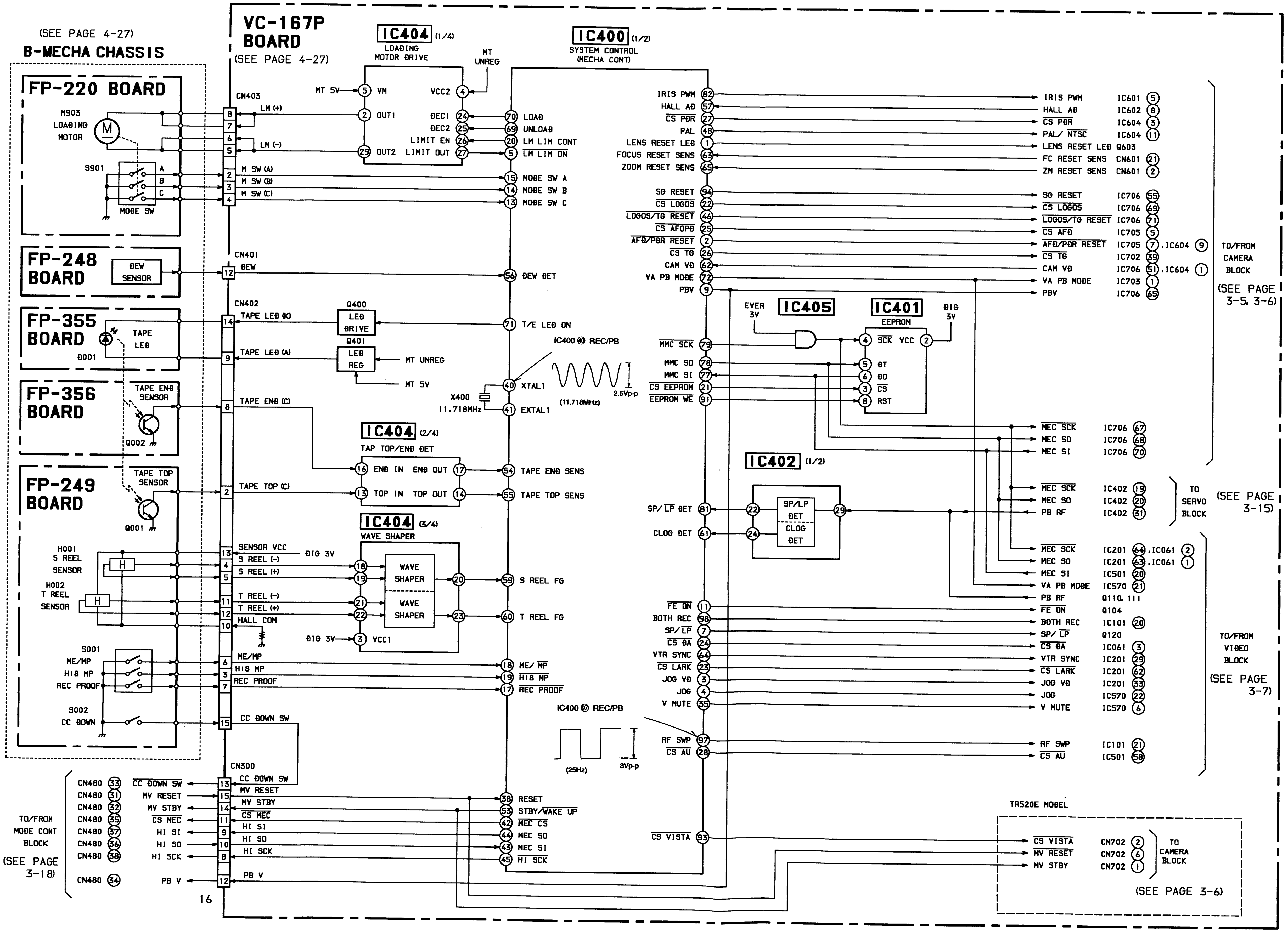

VC-167P BOARD
(SEE PAGE 4-11, 4-15, 4-19)
CD-156 BOARD
(SEE PAGE 4-11)
IC790
CCD IMAGER
Q791, 790
BUFFER
CN790
CN701
IC703
S/H AGC
IC704
A/D CONV.
IC706
DIGITAL CAMERA CORE
DATA BUS
Q750
BUFFER
Q752
BUFFER
IC702
TIMING GEN
IC701
V DRIVE
DC GEN.
IC709
VCO
X702
17.7MHz
IC710
X701
28.375M
IC061
(1/2) D/A CONV.
IC708
(1/2)
IC708
(2/2)
Q701
DC BIAS
IC705
AF OPD
AFY0-7
LENS BLOCK
CN001
CN601
IRIS MOTOR
FOCUS MOTOR
FOCUS SENSOR
ZOOM MOTOR
ZOOM SENSOR
Q601
IRIS DRIVE
IC601 (1/2)
IRIS DRIVE
IC601 (2/2)
C607, R632
L.P.F
IC602 (1/4)
IC602 (2/4)
HALL BIAS CONT
IC602 (3/4)
IC602 (4/4)
Q602
BIAS DRIVE
IC603
MOTOR DRIVE
IC604
MOTOR PRE DRIVE
Q603
VCC SWITCH
IRIS PWM
HALL AD
CS PDR
PAL/NTSC
LENS RESET LED
FC RESET SENS
ZM RESET SENS
TO/FROM SYSCON BLOCK
(SEE PAGE 3-10)
IC703 ㉔, ㉖ REC
680mVp-p
IC790 ⑧ REC
0.72Vp-p
IC790 ⑮ REC
6Vp-p
IC790 ⑯ REC
6.1Vp-p
IC790 ③, ④ REC
8.2Vp-p
IC790 ①, ② REC
8.5Vp-p
IC703 ⑧ REC
1Vp-p
IC704 ㉒ REC
1Vp-p
IC703 ㉔ REC
3.1Vp-p
IC706 ⑧ REC
3.8Vp-p
(17.7MHz)
IC706 ⑳ REC
320mVp-p
IC706 ㉓ REC
0.5Vp-p
IC702 ㉝ REC
140mVp-p
IC702 ㉞ REC
120mVp-p
IC702 ⑤ REC/PB
3.2Vp-p
(28.375MHz)
IC702 ㉟ REC
160mVp-p
IC650 ① REC
0.23Vp-p
(0.1usec/div)


VC-167P BOARD
(SEE PAGE 4-11, 4-15, 4-19)
IC703
S/H AGC
IC704
A/D CONV.
IC706
DIGITAL CAMERA CORE
IC702
TIMING GEN
IC701
V DRIVE
IC709
VCO
IC710
IC707
ZOOM PROC
IC705
AF DPD
IC601 (1/2)
IRIS DRIVE
IC601 (2/2)
IC602 (1/4)
IC602 (2/4)
HALL BIAS CONT
IC602 (3/4)
IC602 (4/4)
IC603
MOTOR DRIVE
IC604
MOTOR PRE DRIVE
Q601
IRIS DRIVE
Q602
BIAS DRIVE
Q603
VCC SWITCH
Q705
SWITCH
Q706
SWITCH
Q703, 704
SWITCH
Q750
BUFFER
Q752
BUFFER
DATA BUS
CN701
CN601
CN702
CN300
TO/FROM MODE CONT BLOCK
(SEE PAGE 3-12)
TO/FROM VIDEO BLOCK
(SEE PAGE 3-7)
TO/FROM SYSCON BLOCK
(SEE PAGE 3-10)
FROM SYSCON BLOCK
(SEE PAGE 3-10)
TR520E MODEL
TZ-5 BOARD
(SEE PAGE 4-53)
IC650 (1/2)
LPF
IC650 (2/2)
IC653
DISCHARGE
IC652
DISCHARGE
IC651 (2/4)
AMP
IC651 (4/4)
AMP
IC655
VISTA
SE651
PITCH SENSOR
SE650
YAW SENSOR
Q650
SW
CN650
X650 12MHz
IC655 24 REC
IC650 1 REC
X701 28.375M
X702 17.7MHz
C607, R632
L.P.F
AFYO-7
2-1-100-95
32-39
CAM 15V
CAM -8.5V
CAM HD
CAM DD ON
CAM Y
CAM C
CAM FSC
CAM SYNC
VTR SYNC
DDP
S/H IN
VA PB MODE
PBV
SG RESET
MEC SCK
MEC SO
MEC SI
CS LOGOS
LOGOS/TG RESET
CS AFD
AFD POR RESET
CS TG
CAM VD
IRIS PWM
HALL AD
CS PDR
PAL/NTSC
LENS RESET LED
FC RESET SENS
ZM RESET SENS
MV RESET
MV STBY
CS VISTA
CS Z VISTA
VISTA SCK
VISTA SO
CS Z TG
FLD
VD

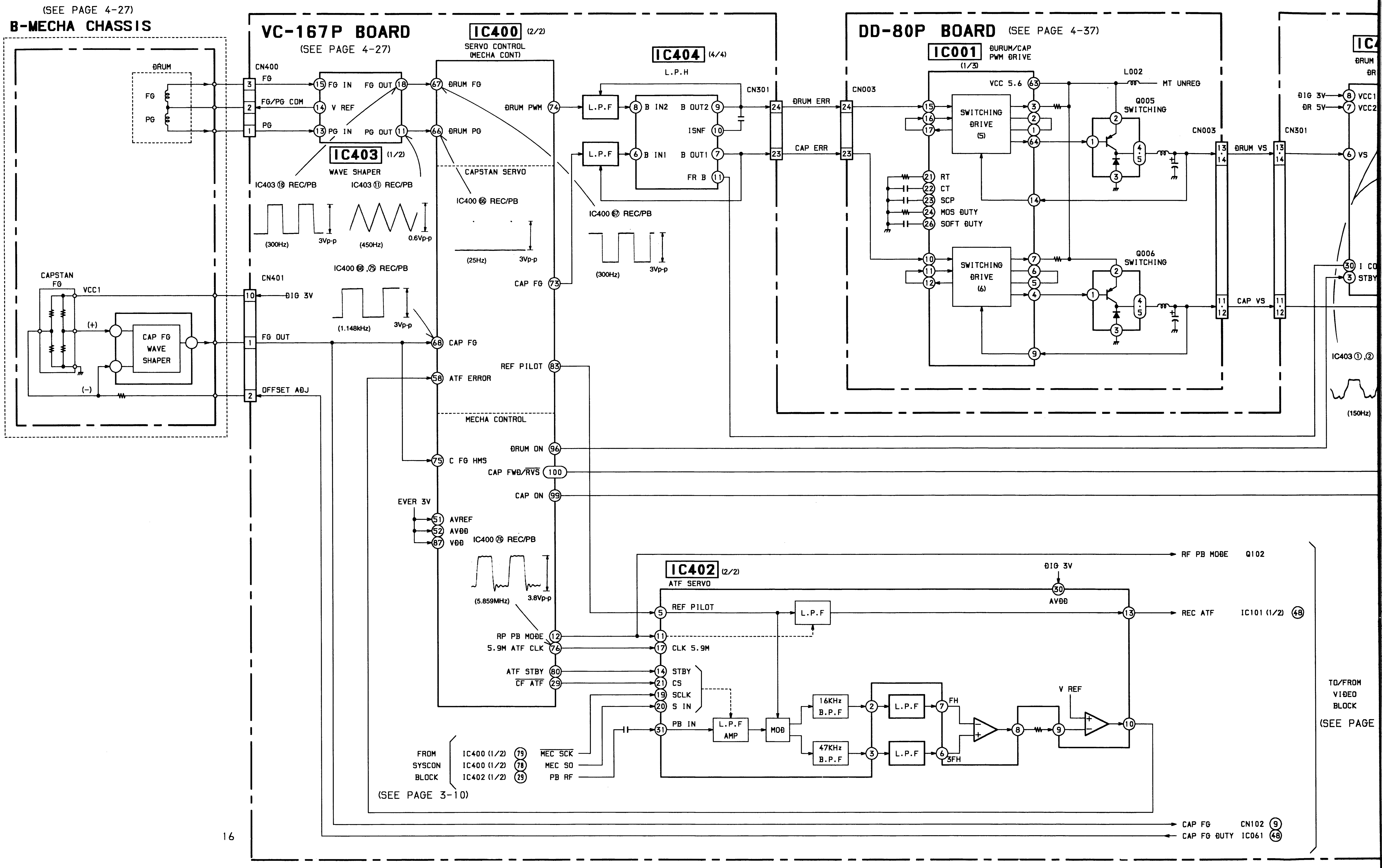
3-3. VIDEO/AUDIO BLOCK DIAGRAM

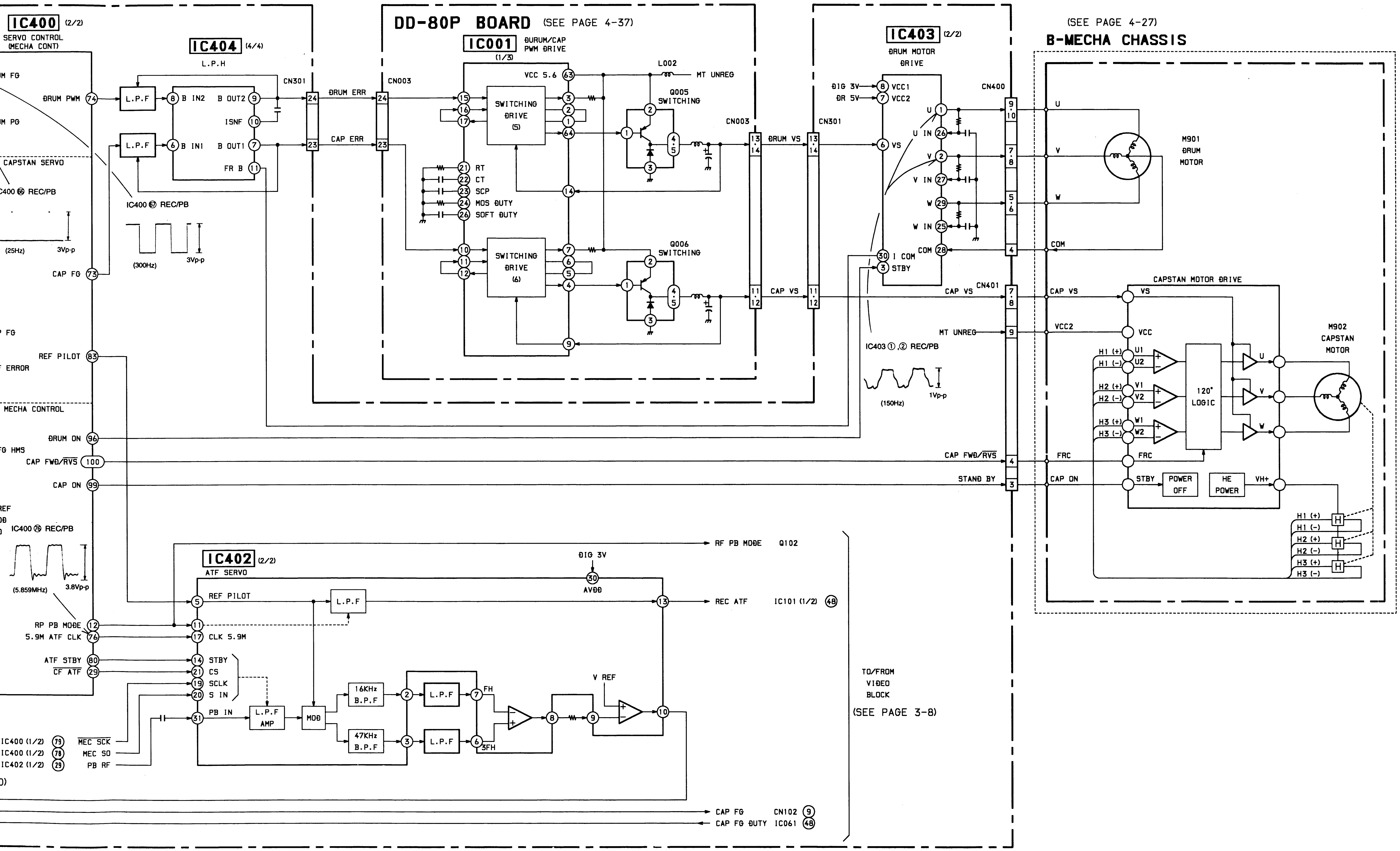

VC-167P BOARD (SEE PAGE 4-11, 4-15, 4-19, 4-21, 4-24)
HEAD
1CH A
2CH A
FE
CN101
1CH A (X)
2CH A (X)
FE (X)
IC101 (1/2)
REC/PB AMP
48dB
15dB
M.T -6dB
12dB
REC1
REC2
RAMP GAIN
V/I
GCA
IC101 ⑭ PB
0.2μsec
0.4Vp-p
IC101 ⑥ REC
IC101 ⑩ PB
0.3Vp-p
IC101 ④ REC
0.2Vp-p
H
IC101 ㉗,㉞ REC
CN102 ② REC
0.2Vp-p
CN102 ⑧ REC/PB
2.7Vp-p
(25Hz)
CN102 ④,⑤ REC
480mVp-p
CN102 ⑨ REC/PB
3Vp-p
(1148Hz)
TEST CONNECTION
Q110, 111 RF AMP
Q112 BUFFER
TRAP
Q113 BUFFER
C TRAP
D103
Q108 SW
IC101 (2/2)
RF AGC
AGC DET
DOC DET
L.P.F
Q124 SOFT LIMITER
Q123 SW
Q125 BUFFER
Q126
Q129, 130 REC RF EQ
Q131 BUFFER
Q109 SW
Q106, 107 EARSE OSC
Q104 SW
Q102 MODE SW
Q101 AMP
Q226 EQ AMP
Q206 BUFFER
Q227 Q215 TRAP 4.43 SW
PB 5V
Q221 TRAP
Q219 BUFFER
Q202 BUFFER
CN102
REC2
PB RF
RF SWP
EMPH IN
DEEMPH OUT
CAM Y IN
BPF ADJ
CAP FG
TO/FROM SERVO BLOCK (SEE PAGE 3-16)
IC400 (68) CAP FG
IC400 ⑫ PR PB MODE
IC402 ⑬ REC ATF
CN401 ② CAP FG DUTY
IC400 ⑪ FE ON
IC401 (98) BOTH REC
IC402 ㉙ PB RF
IC400 ⑦ SP/LP
IC400 (97) RF SWP
TO/FROM SYSCON BLOCK (SEE PAGE 3-10)
IC400 ㉔ CS DA
IC400 (64) VTR SYNC
IC400 ㉓ CS LARK
IC400 (79) MEC SCK
IC400 (78) MEC SO
IC400 (72) VA PB MODE
IC400 (77) MEC SI
IC400 ③ JOG VD
IC400 ④ JOG
IC400 ㉟ V MUTE
IC400 ㉘ CS AU
16
Q114 SW
Q120 SW
SP/LP
LP/SP
IC204
IC061 (2/2)
D/A CONV.
REC C CONT
REC LOW CONT
REC Y CONT
MTG
MT FO
MTQ
CAP FG DUTY
RF SWP
VIDEO 3V
VDD
VCC
D/A CS
SCK
SI
DOC DET
CE CONT
DEM LEVEL
EMPH LEVEL
D CLIP
W CLIP
CARR CONT
DEV CONT
SMEAR
1.5M DEV
AU BPF
D101
Q214 SW
VIDEO 5V
PB 5V
VIDEO 3V
PJ 3V
Q213 SW
Q212 SW
IC201 ㊼ PB
2Vp-p
IC201
Y/C PROCESS
PB C IN
VCC (5V)
RF VCC (3V)
VCC (3V)
VIDEO 5V
VIDEO 3V
PB Y RF IN
V OUT
DOP IN
REC Y RF OUT
Y OUT
REC C OUT
SWP
EMPH IN
NC TC IN
Y COMB OUT
COMB IN
IC201 ㊸ PB
0.3Vp-p
IC201 ㊶ REC
0.5Vp-p
IC201 ㊾ REC
0.4Vp-p
IC201 ㉖ REC
350mVp-p
IC201 ㉖ PB
0.6Vp-p
IC201 ㉔ REC
IC201 ㉔ PB
540mVp-p
TO/FROM CAMERA BLOCK (SEE PAGE 3-5)
IC703 ㉙ S/H IN
Q750 CAM Y
Q752 CAM C
IC706 (49) CAM FSC
IC706 (52) CAM SYNC
IC706 (66) VTR SYNC
IC706 (93) DOP
D201
D202
CAM Y IN
CAM C IN
FSC IN
JVD
CSYNC
CSYNC CIN
IC201 (56) REC/PB
(4.43MHz)
520mVp-p
C EMPH CONT
DEMOD LEVEL
EMPH LEVEL
W CLIP
D CLIP
CARR CONT
DEV CONT (EVR)
SMEAR CONT
BF/VCO
XCS
XSCK
SI
Q208 SW
IC202
VOB REC
VOW REC
C IN
C OUT
FSC OUT
IC201 ㊳ REC
IC201 ㊳ PB
1.2Vp-p
IC201 ㉞,㊳ REC
450mVp-p
IC201 ㉞,㊳ PB
480mVp-p
CN060 ① REC/PB
IC201 ⑮ REC
IC201 ⑮ PB
IC201 (51) REC
270mVp-p
IC201 (51) PB
IC570 ⑮ PB
280mVp-p
IC201 (52) REC
IC201 (52) PB
IC570 ② PB
300mVp-p
Q063 BUFFER
Q064 Y/VOW MIX AMP
Q065 BUFFER
1Vp-p
Q065 Ⓔ REC/PB
AUDIO 5V
Q061, 062 CURRENT LIMITER
CN060
VIDEO OUT
DC OUT
AUDIO L OUT
(SEE PAGE 4-25)
JK-145 BOARD
J060
VIDEO OUT
RFU DC OUT
AUDIO OUT
CN300
EVF Y
EVF Y CN480 ④
DS VOW
DS VOW CN480 ㉖
REC VOW
REC VOB
REC VOW CN480 ㉘
REC VOB CN480 ㉙
IC570
PAL JOG C PROCESS
PB C IN
C OUT
VCC
PJ3V
PB MODE
FSC IN
C SYNC
DBS
INT
JOG
HD OUT
Q222 SW
Q218 BUFFER
IC570 ⑪ REC/PB
2.8Vp-p
IC570 ⑩ PB
IC201 (54) REC/PB
Q570 ON/OFF SW
Q216, 217 PAL JOG SW
IC501
AFM PROCESS
FSC PLL
REC RF
1.5M DEV
BPF CONT
PB RF
MIC L
MIC R
VA PB (CK)
LCM MIX (S-IN)
SWP
BPF MONI
MONO
CAM/LINE
REC MONO
VCC1
VCC2
AUDIO 5V
AUDIO 3V
B.P.F
1.7MHz
1.5MHz
MIX
MOD/DEMOD
NR
SEL
POWER MUTE
Q501 ON/OFF SWITCH
Q507 MUTE
MA-265 BOARD (SEE PAGE 4-30)
IC952
MIC L
CN953
Q951 AMP
J951 EXT MIC
MIC AMP
CN951
AU 3V
CN501

3-4. SYSTEM CONTROL BLOCK DIAGRAM

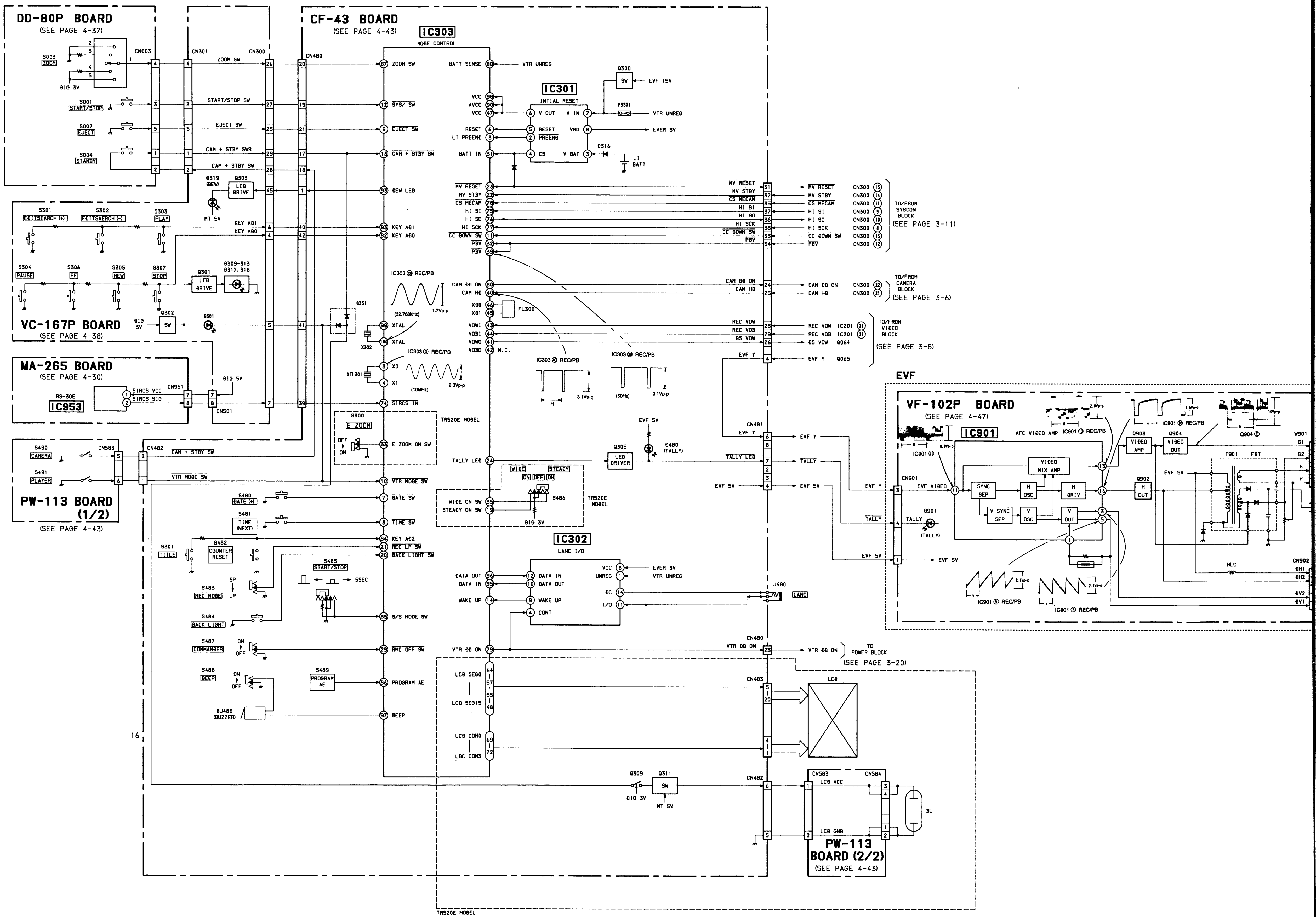

(SEE PAGE 4-27)
B-MECHA CHASSIS
FP-220 BOARD
M903 LOADING MOTOR
S901
MODE SW
FP-248 BOARD
DEW SENSOR
FP-355 BOARD
TAPE LED
D001
FP-356 BOARD
TAPE END SENSOR
Q002
FP-249 BOARD
TAPE TOP SENSOR
Q001
H001 S REEL SENSOR
H002 T REEL SENSOR
S001
ME/MP
HI8 MP
REC PROOF
S002
CC DOWN
VC-167P BOARD
(SEE PAGE 4-27)
CN403
LM (+)
LM (-)
M SW (A)
M SW (B)
M SW (C)
CN401
DEW
CN402
TAPE LED (K)
TAPE LED (A)
TAPE END (C)
TAPE TOP (C)
SENSOR VCC
S REEL (-)
S REEL (+)
T REEL (-)
T REEL (+)
HALL COM
ME/MP
HI8 MP
REC PROOF
CC DOWN SW
IC404 (1/4) LOADING MOTOR DRIVE
MT 5V
VM
OUT1
OUT2
VCC2
DEC1
DEC2
LIMIT EN
LIMIT OUT
MT UNREG
Q400 LED DRIVE
Q401 LED REG
MT UNREG
MT 5V
IC404 (2/4) TAP TOP/END DET
END IN
END OUT
TOP IN
TOP OUT
IC404 (3/4) WAVE SHAPER
WAVE SHAPER
DIG 3V
VCC1
X400 11.718MHz
IC400 (1/2) SYSTEM CONTROL (MECHA CONT)
LOAD
UNLOAD
LM LIM CONT
LM LIM ON
MODE SW A
MODE SW B
MODE SW C
DEW DET
T/E LED ON
IC400 ⑩ REC/PB
XTAL1
EXTAL1
(11.718MHz)
2.5Vp-p
TAPE END SENS
TAPE TOP SENS
S REEL FG
T REEL FG
ME/MP
HI8 MP
REC PROOF
IC400 ⑨ REC/PB
(25Hz)
3Vp-p
RESET
STBY/WAKE UP
MEC CS
MEC SO
MEC SI
HI SCK
IRIS PWM
HALL AD
CS PDR
PAL
LENS RESET LED
FOCUS RESET SENS
ZOOM RESET SENS
SG RESET
CS LOGOS
LOGOS/TG RESET
CS AFOPD
AFD/PDR RESET
CS TG
CAM VD
VA PB MODE
PBV
MMC SCK
MMC SO
MMC SI
CS EEPROM
EEPROM WE
SP/LP DET
CLOG DET
FE ON
BOTH REC
SP/LP
CS DA
VTR SYNC
CS LARK
JOG VD
JOG
V MUTE
RF SWP
CS AU
CS VISTA
EVER 3V
IC405
IC401 EEPROM
DIG 3V
SCK VCC
DT
DO
CS
RST
IC402 (1/2)
SP/LP DET
CLOG DET
IRIS PWM IC601 ⑤
HALL AD IC602 ⑧
CS PDR IC604 ③
PAL/NTSC IC604 ⑪
LENS RESET LED Q603
FC RESET SENS CN601 ㉑
ZM RESET SENS CN601 ②
SG RESET IC706 (55)
CS LOGOS IC706 (69)
LOGOS/TG RESET IC706 (71)
CS AFD IC705 ⑤
AFD/PDR RESET IC705 ⑦, IC604 ⑨
CS TG IC702 (39)
CAM VD IC706 (51), IC604 ①
VA PB MODE IC703 ①
PBV IC706 (65)
TO/FROM CAMERA BLOCK
(SEE PAGE 3-5, 3-6)
MEC SCK IC706 (67)
MEC SO IC706 (68)
MEC SI IC706 (70)
MEC SCK IC402 ⑲
MEC SO IC402 ⑳
PB RF IC402 ㉛
TO SERVO BLOCK
(SEE PAGE 3-15)
MEC SCK IC201 (64), IC061 ②
MEC SO IC201 (63), IC061 ①
MEC SI IC501 ⑳
VA PB MODE IC570 ㉑
PB RF Q110, 111
FE ON Q104
BOTH REC IC101 ⑳
SP/LP Q120
CS DA IC061 ③
VTR SYNC IC201 ㉙
CS LARK IC201 (62)
JOG VD IC201 (53)
JOG IC570 ㉒
V MUTE IC570 ⑥
RF SWP IC101 ㉑
CS AU IC501 (58)
TO/FROM VIDEO BLOCK
(SEE PAGE 3-7)
TR520E MODEL
CS VISTA CN702 ②
MV RESET CN702 ⑥
MV STBY CN702 ①
TO CAMERA BLOCK
(SEE PAGE 3-6)
CN300
CC DOWN SW
MV RESET
MV STBY
CS MEC
HI SI
HI SO
HI SCK
PB V
CN480 (33) CC DOWN SW
CN480 ㉛ MV RESET
CN480 ㉜ MV STBY
CN480 (35) CS MEC
CN480 (37) HI SI
CN480 (36) HI SO
CN480 (38) HI SCK
CN480 (34) PB V
TO/FROM MODE CONT BLOCK
(SEE PAGE 3-18)
16

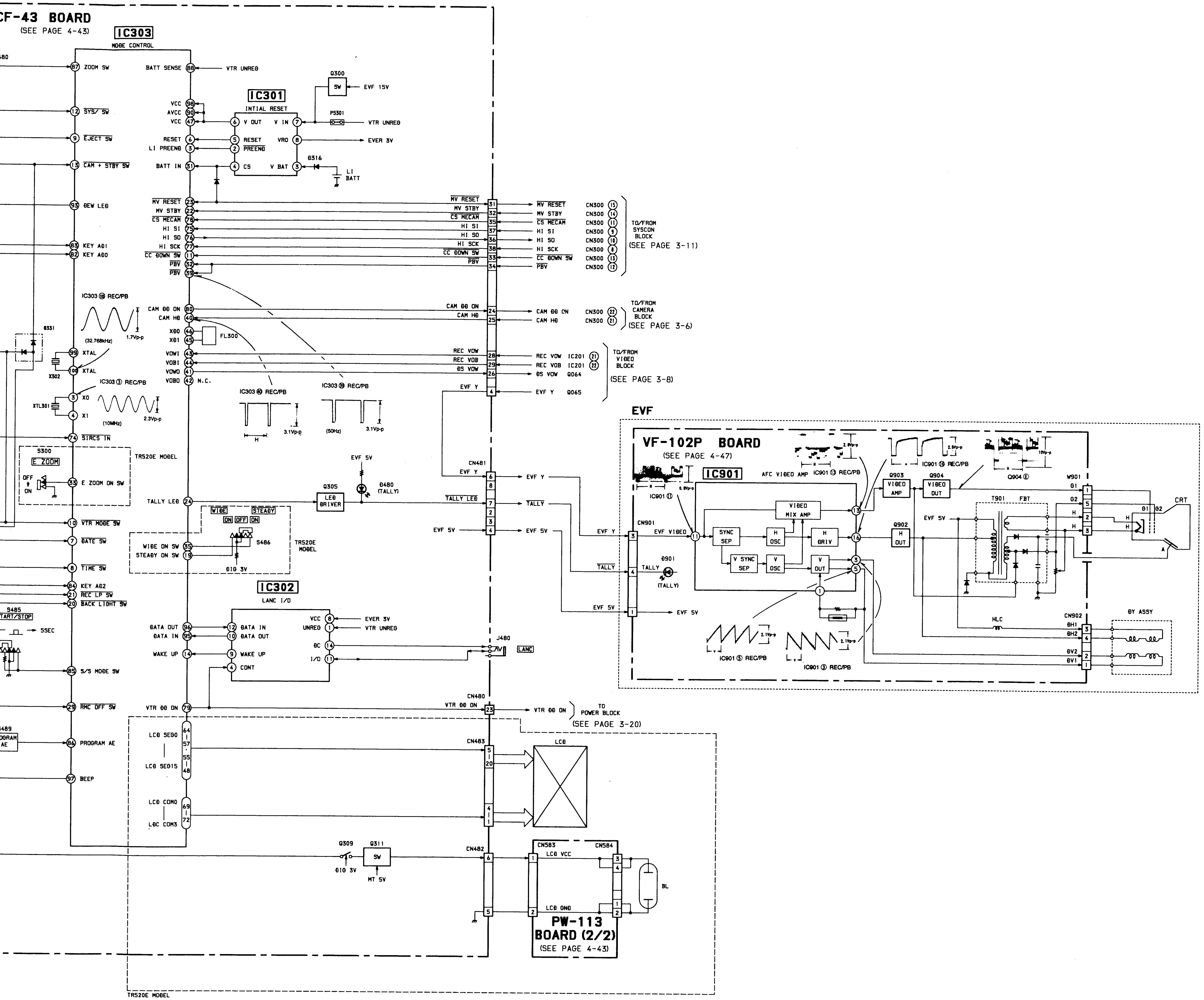
3-5. SERVO BLOCK DIAGRAM


(SEE PAGE 4-27)
B-MECHA CHASSIS
DRUM
FG
PG
CAPSTAN FG
VCC1
(+)
(-)
CAP FG WAVE SHAPER
VC-167P BOARD
(SEE PAGE 4-27)
CN400
FG
FG/PG COM
PG
IC403 (1/2)
WAVE SHAPER
FG IN
FG OUT
V REF
PG IN
PG OUT
IC403 ⑱ REC/PB
IC403 ⑪ REC/PB
(300Hz)
3Vp-p
(450Hz)
0.6Vp-p
IC400 ⑱,⑮ REC/PB
(1.148kHz)
3Vp-p
CN401
DIG 3V
FG OUT
OFFSET ADJ
IC400 (2/2)
SERVO CONTROL (MECHA CONT)
DRUM FG
DRUM PG
DRUM PWM
CAPSTAN SERVO
IC400 ⑯ REC/PB
(25Hz)
3Vp-p
CAP FG
ATF ERROR
REF PILOT
MECHA CONTROL
DRUM ON
C FG HMS
CAP FWD/RVS
CAP ON
EVER 3V
AVREF
AVDD
VDD
IC400 ⑯ REC/PB
(5.859MHz)
3.8Vp-p
RP PB MODE
5.9M ATF CLK
ATF STBY
CF ATF
IC404 (4/4)
L.P.H
L.P.F
B IN2
B OUT2
ISNF
B IN1
B OUT1
FR B
IC400 ⑰ REC/PB
(300Hz)
3Vp-p
CN301
DRUM ERR
CAP ERR
DD-80P BOARD (SEE PAGE 4-37)
IC001 DURUM/CAP PWM DRIVE (1/3)
CN003
VCC 5.6
L002
MT UNREG
Q005 SWITCHING
SWITCHING DRIVE (5)
RT
CT
SCP
MOS DUTY
SOFT DUTY
Q006 SWITCHING
SWITCHING DRIVE (6)
CN003
DRUM VS
CAP VS
CN301
DIG 3V
DR 5V
VCC1
VCC2
VS
I CO
STBY
IC403 ①,②
(150Hz)
IC402 (2/2)
ATF SERVO
DIG 3V
AVDD
REF PILOT
CLK 5.9M
STBY
CS
SCLK
S IN
PB IN
L.P.F AMP
MOD
16KHz B.P.F
47KHz B.P.F
FH
3FH
V REF
RF PB MODE Q102
REC ATF IC101 (1/2) ㊽
CAP FG CN102 ⑨
CAP FG DUTY IC061 ㊽
TO/FROM VIDEO BLOCK
(SEE PAGE
FROM SYSCON BLOCK
IC400 (1/2) ⑲ MEC SCK
IC400 (1/2) ⑱ MEC SO
IC402 (1/2) ㉙ PB RF
(SEE PAGE 3-10)
16

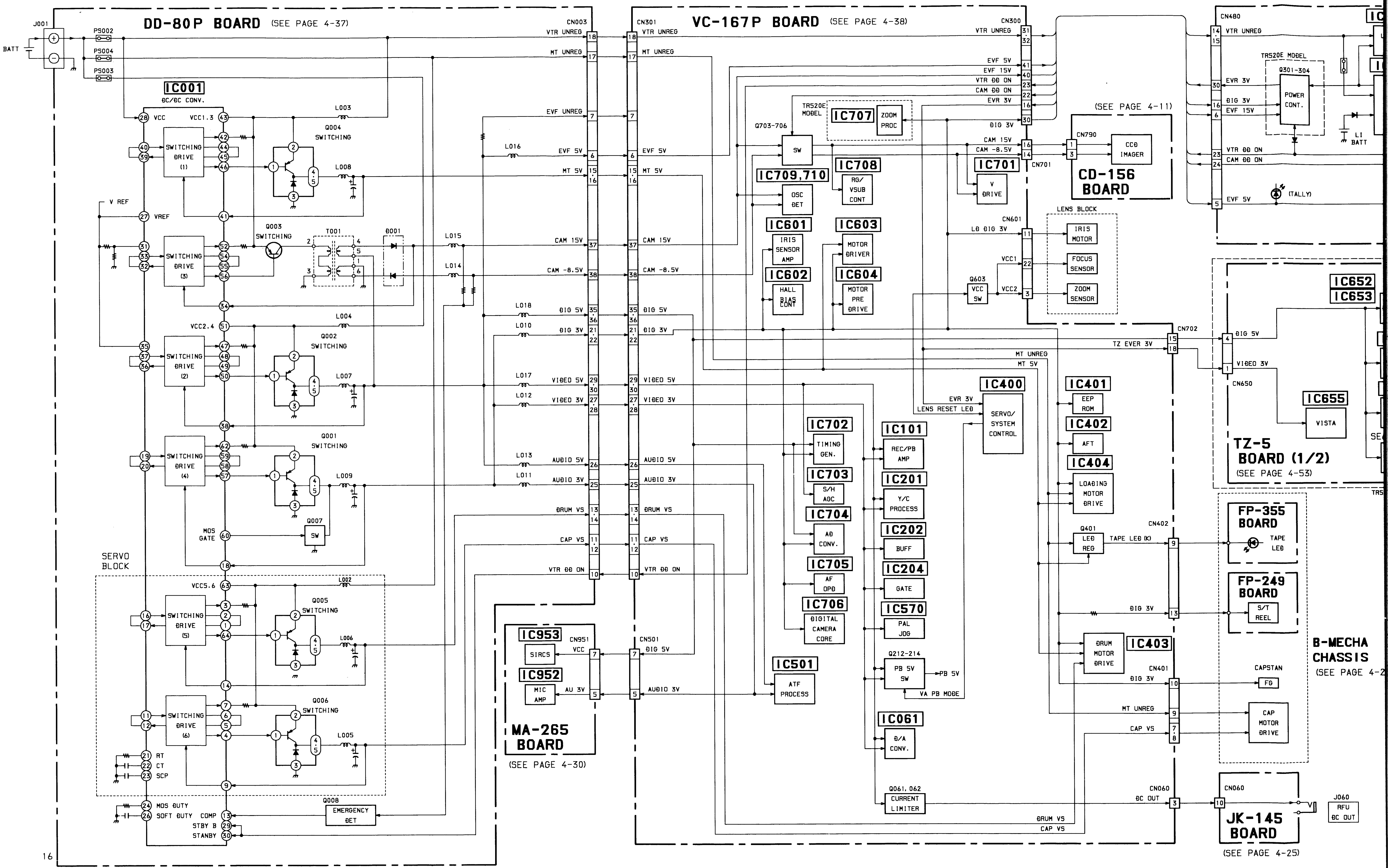

IC400 (2/2)
SERVO CONTROL (MECHA CONT)
IC404 (4/4)
L.P.H
DRUM PWM
L.P.F
B IN2
B OUT2
ISNF
B IN1
B OUT1
FR B
CAPSTAN SERVO
IC400 ⑥ REC/PB
IC400 ⑦ REC/PB
(25Hz)
3Vp-p
(300Hz)
3Vp-p
CAP FG
REF PILOT
ERROR
MECHA CONTROL
DRUM ON
CAP FWD/RVS
CAP ON
IC400 ⑦ REC/PB
(5.859MHz)
3.8Vp-p
RP PB MODE
5.9M ATF CLK
ATF STBY
CF ATF
IC400 (1/2) ⑲
IC400 (1/2) ⑱
IC402 (1/2) ㉙
MEC SCK
MEC SO
PB RF
CN301
DRUM ERR
CAP ERR
DD-80P BOARD (SEE PAGE 4-37)
IC001 DRUM/CAP PWM DRIVE (1/3)
CN003
VCC 5.6
SWITCHING DRIVE (5)
SWITCHING DRIVE (6)
RT
CT
SCP
MOS DUTY
SOFT DUTY
L002
MT UNREG
Q005 SWITCHING
Q006 SWITCHING
DRUM VS
CAP VS
IC403 (2/2)
DRUM MOTOR DRIVE
DIG 3V
DR 5V
VCC1
VCC2
VS
U
U IN
V
V IN
W
W IN
COM
I COM
STBY
IC403 ①,② REC/PB
(150Hz)
1Vp-p
CN400
CN401
MT UNREG
CAP FWD/RVS
STAND BY
(SEE PAGE 4-27)
B-MECHA CHASSIS
M901 DRUM MOTOR
CAPSTAN MOTOR DRIVE
VCC2
VCC
FRC
CAP ON
STBY
POWER OFF
HE POWER
VH+
H1 (+)
H1 (−)
H2 (+)
H2 (−)
H3 (+)
H3 (−)
U1
U2
V1
V2
W1
W2
120° LOGIC
M902 CAPSTAN MOTOR
IC402 (2/2)
ATF SERVO
DIG 3V
AVDD
REF PILOT
CLK 5.9M
STBY
CS
SCLK
S IN
PB IN
L.P.F AMP
MOD
16KHz B.P.F
47KHz B.P.F
FH
3FH
V REF
RF PB MODE Q102
REC ATF IC101 (1/2) ㊽
TO/FROM VIDEO BLOCK
(SEE PAGE 3-8)
CAP FG CN102 ⑨
CAP FG DUTY IC061 ㊽

3-6. MODE CONTROL/EVF BLOCK DIAGRAM

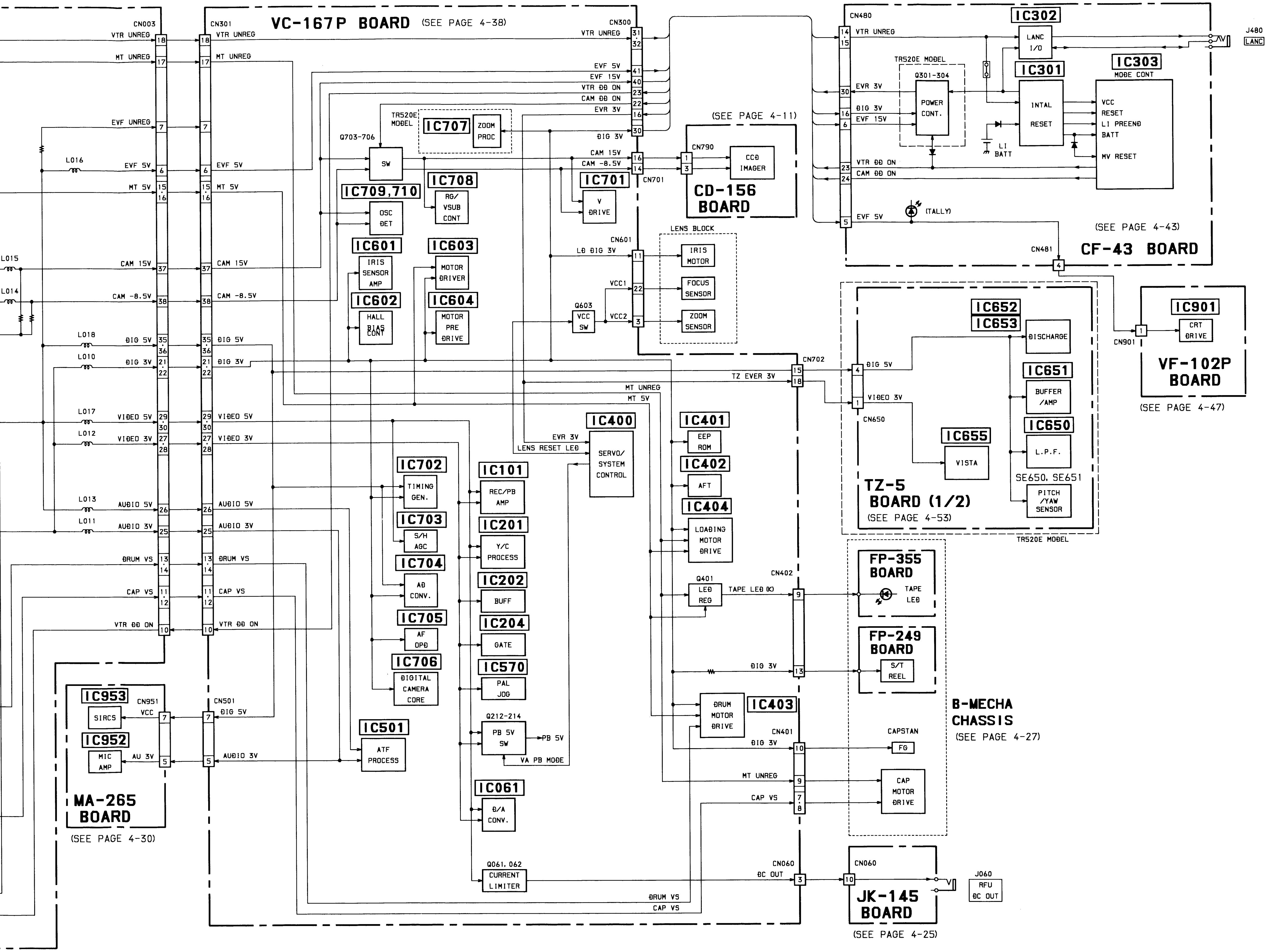

DD-80P BOARD
(SEE PAGE 4-37)
S003 ZOOM
S001 START/STOP
S002 EJECT
S004 STANBY
CN003
CN301
CN300
CN480
ZOOM SW
START/STOP SW
EJECT SW
CAM + STBY SWR
CAM + STBY SW
Q319 (BEW)
Q303 LED DRIVE
MT 5V
KEY AD1
KEY AD0
VC-167P BOARD
(SEE PAGE 4-38)
S301 EDITSEARCH (+)
S302 EDITSAERCH (-)
S303 PLAY
S304 PAUSE
S306 FF
S305 REW
S307 STOP
Q301 LED DRIVE
D309-313 D317, 318
Q302 SW
D301
DIO 3V
D331
MA-265 BOARD
(SEE PAGE 4-30)
RS-30E
IC953
SIRCS VCC
SIRCS SIG
CN951
CN501
DIO 5V
PW-113 BOARD (1/2)
(SEE PAGE 4-43)
S490 CAMERA
S491 PLAYER
CN583
CN482
CAM + STBY SW
VTR MODE SW
CF-43 BOARD
(SEE PAGE 4-43)
IC303
MODE CONTROL
ZOOM SW
SYS/ SW
EJECT SW
CAM + STBY SW
BEW LED
KEY AD1
KEY AD0
BATT SENSE
VTR UNREG
VCC
AVCC
RESET
LI PREEND
BATT IN
IC301
INTIAL RESET
V OUT
V IN
RESET
PREEND
CS
VRO
V BAT
Q300 SW
EVF 15V
PS301
EVER 3V
D316
LI BATT
MV RESET
MV STBY
CS MECAM
HI SI
HI SO
HI SCK
CC DOWN SW
PBV
CN300
TO/FROM SYSCON BLOCK
(SEE PAGE 3-11)
IC303 ⑳ REC/PB
(32.768kHz)
1.7Vp-p
XTAL
X302
IC303 ③ REC/PB
XTL301
XO
XI
(10MHz)
2.3Vp-p
SIRCS IN
CAM DD ON
CAM HD
XOO
XOI
FL300
VDWI
VDBI
VDWO
VDBO
N.C.
IC303 ㊵ REC/PB
IC303 ㊴ REC/PB
3.1Vp-p
(50Hz)
H
TO/FROM CAMERA BLOCK
(SEE PAGE 3-6)
REC VDW
REC VDB
DS VDW
EVF Y
IC201
Q064
Q065
TO/FROM VIDEO BLOCK
(SEE PAGE 3-8)
S300 E ZOOM
OFF
ON
E ZOOM ON SW
TR520E MODEL
EVF 5V
TALLY LED
Q305 LED DRIVER
D480 (TALLY)
CN481
EVF Y
TALLY LED
EVF 5V
VTR MODE SW
WIDE ON SW
STEADY ON SW
WIDE
STEADY
ON
OFF
S486
DIO 3V
TR520E MODEL
S480 DATE (+)
S481 TIME (NEXT)
S301 TITLE
S482 COUNTER RESET
S483 REC MODE
SP
LP
S485 START/STOP
55EC
S484 BACK LIGHT
S487 COMMANDER
S488 BEEP
S489 PROGRAM AE
BU480 (BUZZER)
DATE SW
TIME SW
KEY AD2
REC LP SW
BACK LIGHT SW
S/S MODE SW
RMC OFF SW
PROGRAM AE
BEEP
IC302
LANC I/O
DATA OUT
DATA IN
WAKE UP
CONT
VCC
UNREG
EVER 3V
VTR UNREG
DC
I/O
J480
LANC
VTR DD ON
CN480
TO POWER BLOCK
(SEE PAGE 3-20)
LCD SEG0
LCD SEG15
LCD COM0
LCD COM3
CN483
LCD
Q309
Q311 SW
DIO 3V
MT 5V
CN583
CN584
LCD VCC
LCD GND
BL
PW-113 BOARD (2/2)
(SEE PAGE 4-43)
TR520E MODEL
16
EVF
VF-102P BOARD
(SEE PAGE 4-47)
IC901
AFC VIDEO AMP
IC901 ① REC/PB
IC901 ⑬ REC/PB
IC901 ⑭ REC/PB
Q903 VIDEO AMP
Q904 VIDEO OUT
Q904 Ⓔ
W901
CN901
EVF VIDEO
VIDEO MIX AMP
SYNC SEP
H OSC
H DRIV
V SYNC SEP
V OSC
V OUT
Q902 H OUT
T901 FBT
D901 TALLY (TALLY)
EVF 5V
HLC
CN902
IC901 ⑤ REC/PB
IC901 ③ REC/PB
DH1
DH2
DV2
DV1


CF-43 BOARD
(SEE PAGE 4-43)
IC303
MODE CONTROL
ZOOM SW
SYS/ SW
EJECT SW
CAM + STBY SW
DEW LED
KEY AD1
KEY AD0
XTAL
X0
X1
SIRCS IN
E ZOOM ON SW
VTR MODE SW
DATE SW
TIME SW
KEY AD2
REC LP SW
BACK LIGHT SW
S/S MODE SW
RMC OFF SW
PROGRAM AE
BEEP
BATT SENSE
VTR UNREG
VCC
AVCC
RESET
LI PREEND
BATT IN
IC301
INTIAL RESET
V OUT
V IN
PREEND
CS
VRO
V BAT
Q300
SW
EVF 15V
PS301
EVER 3V
D316
LI BATT
MV RESET
MV STBY
CS MECAM
HI SI
HI SO
HI SCK
CC DOWN SW
PBV
CN300
TO/FROM SYSCON BLOCK
(SEE PAGE 3-11)
IC303 ⑳ REC/PB
1.7Vp-p
(32.768kHz)
CAM DD ON
CAM HD
FL300
TO/FROM CAMERA BLOCK
(SEE PAGE 3-6)
IC303 ③ REC/PB
2.3Vp-p
(10MHz)
REC VDW
REC VDB
DS VDW
VDBO
N.C.
IC201
Q064
TO/FROM VIDEO BLOCK
(SEE PAGE 3-8)
EVF Y
Q065
IC303 ⑭ REC/PB
3.1Vp-p
IC303 ⑮ REC/PB
(50Hz)
S300
E ZOOM
OFF
ON
TRS20E MODEL
TALLY LED
Q305
LED DRIVER
D480
(TALLY)
EVF 5V
CN481
WIDE
STEADY
ON OFF ON
S486
WIDE ON SW
STEADY ON SW
D10 3V
IC302
LANC I/O
DATA OUT
DATA IN
WAKE UP
CONT
DC
I/O
J480
LANC
S485
START/STOP
5SEC
S489
PROGRAM AE
CN480
VTR DD ON
TO POWER BLOCK
(SEE PAGE 3-20)
CN483
LCD SEG0
LCD SEG15
LCD COM0
LCD COM3
LCD
Q309
Q311
SW
MT 5V
CN482
CN583
CN584
LCD VCC
LCD GND
BL
PW-113 BOARD (2/2)
(SEE PAGE 4-43)
EVF
VF-102P BOARD
(SEE PAGE 4-47)
IC901
AFC VIDEO AMP
IC901 ⑬ REC/PB
IC901 ⑯ REC/PB
Q904 ⓔ
Q903
VIDEO AMP
Q904
VIDEO OUT
W901
G1
G2
H
CRT
CN901
EVF VIDEO
TALLY
D901
(TALLY)
SYNC SEP
H OSC
H DRIV
VIDEO MIX AMP
V SYNC SEP
V OSC
V OUT
Q902
H OUT
T901
FBT
HLC
CN902
DH1
DH2
DV2
DV1
DY ASSY
IC901 ③ REC/PB
IC901 ⑤ REC/PB
IC901 ⑪

7. POWER BLOCK DIAGRAM



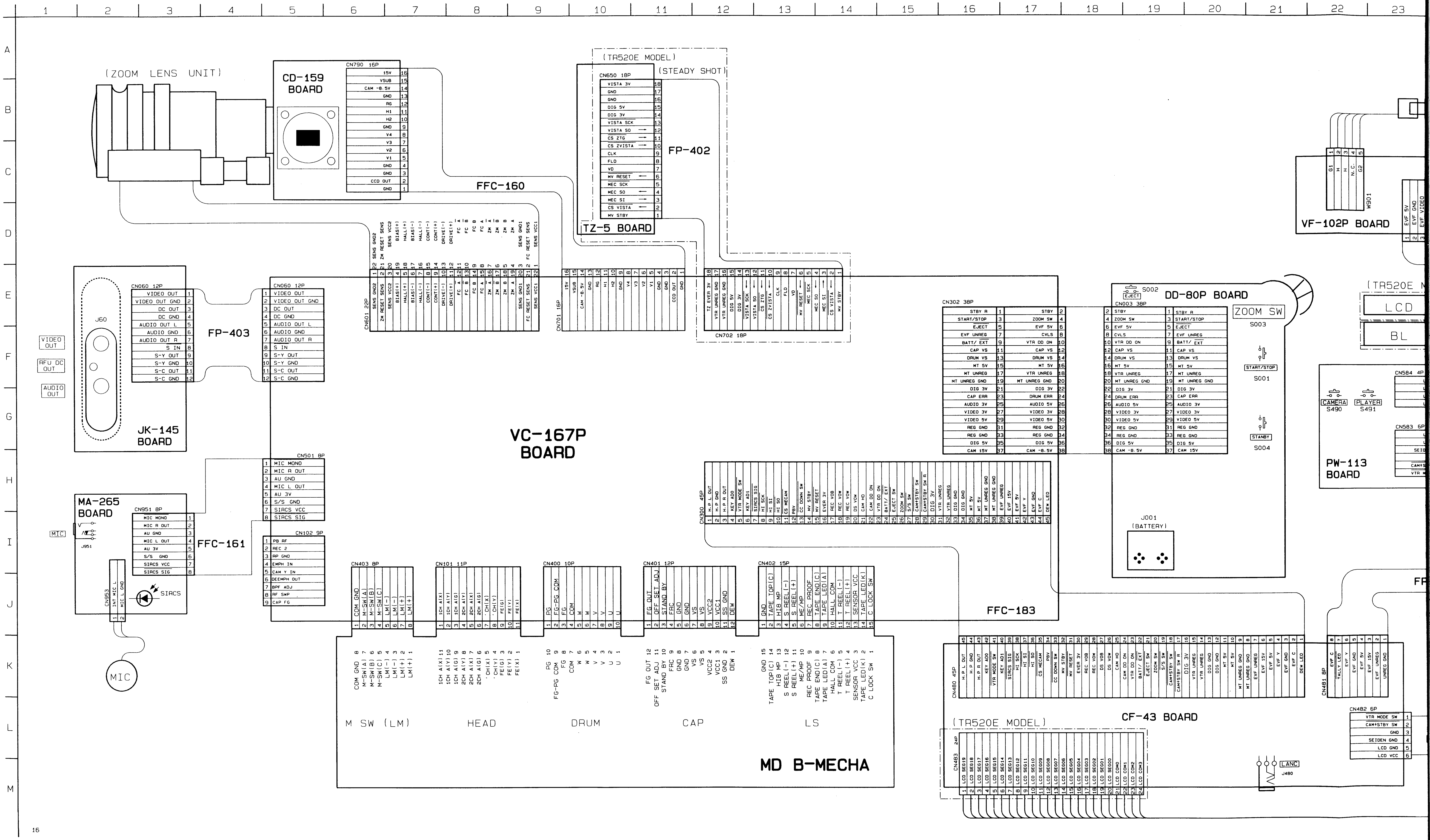
DD-80P BOARD (SEE PAGE 4-37)
VC-167P BOARD (SEE PAGE 4-38)
J001
BATT
PS002
PS004
PS003
IC001
DC/DC CONV.
VCC
VCC1.3
SWITCHING DRIVE (1)
SWITCHING DRIVE (3)
SWITCHING DRIVE (2)
SWITCHING DRIVE (4)
SWITCHING DRIVE (5)
SWITCHING DRIVE (6)
V REF
VREF
VCC2.4
VCC5.6
L003
L008
Q004 SWITCHING
Q003 SWITCHING
T001
D001
L004
Q002 SWITCHING
L007
Q001 SWITCHING
L009
Q007 SW
MOS GATE
SERVO BLOCK
L002
Q005 SWITCHING
L006
Q006 SWITCHING
L005
RT
CT
SCP
MOS DUTY
SOFT DUTY
COMP
STBY B
STANBY
Q008 EMERGENCY DET
L016
L015
L014
L018
L010
L017
L012
L013
L011
CN003
VTR UNREG
MT UNREG
EVF UNREG
EVF 5V
MT 5V
CAM 15V
CAM -8.5V
DIG 5V
DIG 3V
VIDEO 5V
VIDEO 3V
AUDIO 5V
AUDIO 3V
DRUM VS
CAP VS
VTR DD ON
CN301
MA-265 BOARD (SEE PAGE 4-30)
IC953 SIRCS
IC952 MIC AMP
CN951
VCC
AU 3V
CN501
CN300
EVF 15V
CAM DD ON
EVR 3V
TR520E MODEL
IC707 ZOOM PROC
Q703-706
SW
IC709,710 OSC DET
IC708 RG/VSUB CONT
IC701 V DRIVE
CN701
IC601 IRIS SENSOR AMP
IC602 HALL BIAS CONT
IC603 MOTOR DRIVER
IC604 MOTOR PRE DRIVE
CN601
LD DIG 3V
VCC1
VCC2
Q603 VCC SW
LENS BLOCK
IRIS MOTOR
FOCUS SENSOR
ZOOM SENSOR
(SEE PAGE 4-11)
CN790
CCD IMAGER
CD-156 BOARD
IC400 SERVO/SYSTEM CONTROL
LENS RESET LED
IC702 TIMING GEN.
IC703 S/H AGC
IC704 AD CONV.
IC705 AF DPD
IC706 DIGITAL CAMERA CORE
IC101 REC/PB AMP
IC201 Y/C PROCESS
IC202 BUFF
IC204 GATE
IC570 PAL JOG
Q212-214 PB 5V SW
PB 5V
VA PB MODE
IC061 D/A CONV.
IC501 ATF PROCESS
Q061, 062 CURRENT LIMITER
IC401 EEP ROM
IC402 AFT
IC404 LOADING MOTOR DRIVE
Q401 LED REG
TAPE LED (K)
IC403 DRUM MOTOR DRIVE
CN402
CN401
CN702
TZ EVER 3V
TZ-5 BOARD (1/2) (SEE PAGE 4-53)
CN650
IC652
IC653
IC655 VISTA
CN480
Q301-304 POWER CONT.
LI BATT
VTR DD ON
(TALLY)
FP-355 BOARD
TAPE LED
FP-249 BOARD
S/T REEL
B-MECHA CHASSIS (SEE PAGE 4-2
CAPSTAN FG
CAP MOTOR DRIVE
CN060
DC OUT
JK-145 BOARD (SEE PAGE 4-25)
J060 RFU DC OUT
16


VC-167P BOARD (SEE PAGE 4-38)
CN003
CN301
CN300
VTR UNREG
MT UNREG
EVF UNREG
EVF 5V
MT 5V
CAM 15V
CAM -8.5V
DIG 5V
DIG 3V
VIDEO 5V
VIDEO 3V
AUDIO 5V
AUDIO 3V
DRUM VS
CAP VS
VTR DD ON
CAM DD ON
EVF 15V
EVR 3V
L016
L015
L014
L018
L010
L017
L012
L013
L011
TR520E MODEL
IC707
ZOOM PROC
Q703-706
SW
IC709,710
OSC DET
IC708
RG/VSUB CONT
IC701
V DRIVE
CN701
IC601
IRIS SENSOR AMP
IC603
MOTOR DRIVER
IC602
HALL BIAS CONT
IC604
MOTOR PRE DRIVE
CN601
LD DIG 3V
VCC1
VCC2
Q603
VCC SW
LENS BLOCK
IRIS MOTOR
FOCUS SENSOR
ZOOM SENSOR
(SEE PAGE 4-11)
CN790
CCD IMAGER
CD-156 BOARD
CN702
TZ EVER 3V
IC400
SERVO/SYSTEM CONTROL
LENS RESET LED
IC702
TIMING GEN.
IC703
S/H AGC
IC704
AD CONV.
IC705
AF OPD
IC706
DIGITAL CAMERA CORE
IC101
REC/PB AMP
IC201
Y/C PROCESS
IC202
BUFF
IC204
GATE
IC570
PAL JOG
Q212-214
PB 5V SW
→PB 5V
VA PB MODE
IC061
D/A CONV.
IC501
ATF PROCESS
Q061, 062
CURRENT LIMITER
IC401
EEP ROM
IC402
AFT
IC404
LOADING MOTOR DRIVE
Q401
LED REG
TAPE LED (K)
CN402
IC403
DRUM MOTOR DRIVE
CN401
CN060
DC OUT
IC953
SIRCS
IC952
MIC AMP
CN951
VCC
AU 3V
CN501
MA-265 BOARD
(SEE PAGE 4-30)
CN480
IC302
LANC I/O
J480
LANC
TR520E MODEL
Q301-304
POWER CONT.
IC301
INTAL
RESET
LI BATT
IC303
MODE CONT
VCC
RESET
LI PREEND
BATT
MV RESET
(TALLY)
(SEE PAGE 4-43)
CF-43 BOARD
CN481
IC652
IC653
DISCHARGE
IC651
BUFFER /AMP
IC650
L.P.F.
SE650, SE651
PITCH /YAW SENSOR
CN650
IC655
VISTA
TZ-5 BOARD (1/2)
(SEE PAGE 4-53)
TR520E MODEL
IC901
CRT DRIVE
CN901
VF-102P BOARD
(SEE PAGE 4-47)
FP-355 BOARD
TAPE LED
FP-249 BOARD
S/T REEL
B-MECHA CHASSIS
(SEE PAGE 4-27)
CAPSTAN
FG
CAP MOTOR DRIVE
JK-145 BOARD
(SEE PAGE 4-25)
J060
RFU DC OUT

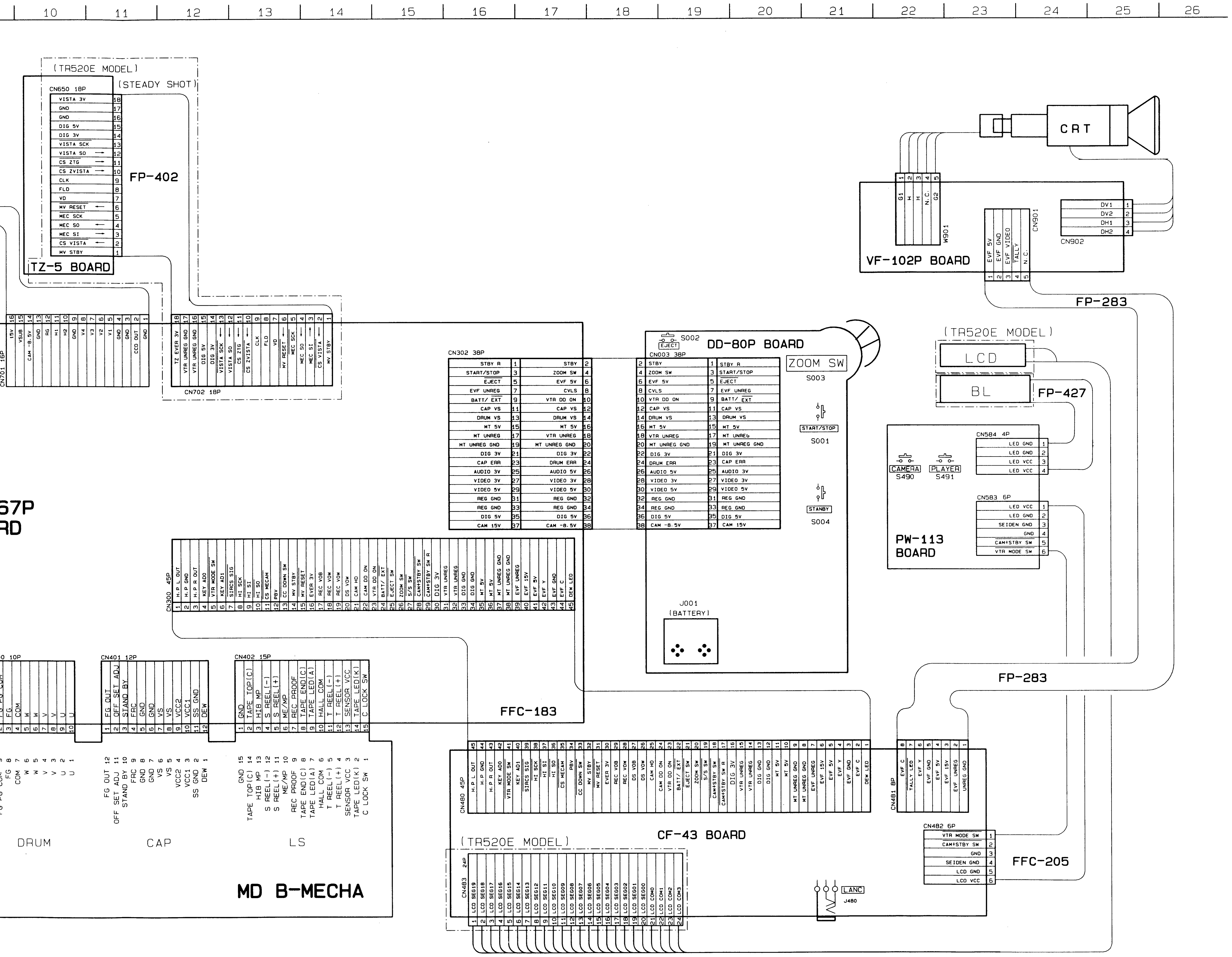
SECTION 4

PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



(ZOOM LENS UNIT)
CD-159 BOARD
CN790 16P
15V
VSUB
CAM -8.5V
GND
RG
H1
H2
GND
V4
V3
V2
V1
GND
GND
CCD OUT
GND
FFC-160
(TR520E MODEL)
(STEADY SHOT)
CN650 18P
VISTA 3V
GND
GND
DIG 5V
DIG 3V
VISTA SCK
VISTA SO
CS ZTG
CS ZVISTA
CLK
FLD
VD
MV RESET
MEC SCK
MEC SO
MEC SI
CS VISTA
MV STBY
FP-402
TZ-5 BOARD
VF-102P BOARD
W901
G1
H
H
N.C.
G2
EVF 5V
EVF GND
EVF VIDEO
CN060 12P
VIDEO OUT
VIDEO OUT GND
DC OUT
DC GND
AUDIO OUT L
AUDIO GND
AUDIO OUT R
S IN
S-Y OUT
S-Y GND
S-C OUT
S-C GND
J60
FP-403
VIDEO OUT
RFU DC OUT
AUDIO OUT
JK-145 BOARD
CN601 22P
SENS GND2
ZM RESET SENS
SENS VCC2
BIAS(+)
BIAS(-)
HALL(+)
HALL(-)
CONT(+)
CONT(-)
DRIVE(+)
DRIVE(-)
FC A
FC B
FC B
FC A
ZM A
ZM B
ZM B
ZM A
SENS GND1
FC RESET SENS
SENS VCC1
CN701 16P
CN702 18P
TZ EVER 3V
VTR UNREG GND
VTR UNREG
DIG 3V
VISTA SCK
VISTA SO
CS ZTG
CS ZVISTA
CLK
FLD
VD
MV RESET
MEC SCK
MEC SO
MEC SI
CS VISTA
MV STBY
VC-167P BOARD
CN302 38P
STBY R
STBY
START/STOP
ZOOM SW
EJECT
EVF 5V
EVF UNREG
CVLS
BATT/ EXT
VTR DD ON
CAP VS
DRUM VS
MT 5V
MT UNREG
VTR UNREG
MT UNREG GND
DIG 3V
CAP ERR
DRUM ERR
AUDIO 3V
AUDIO 5V
VIDEO 3V
VIDEO 5V
REG GND
DIG 5V
CAM 15V
CAM -8.5V
DD-80P BOARD
CN003 38P
S002
EJECT
ZOOM SW
S003
START/STOP
S001
STANBY
S004
J001
(BATTERY)
(TR520E MODEL)
LCD
BL
CAMERA
S490
PLAYER
S491
CN584 4P
CN583 6P
PW-113 BOARD
MA-265 BOARD
CN951 8P
MIC MONO
MIC R OUT
AU GND
MIC L OUT
AU 3V
S/S GND
SIRCS VCC
SIRCS SIG
J951
MIC
CN953
INT MIC L
MIC L GND
SIRCS
MIC
FFC-161
CN501 8P
CN102 9P
PB RF
REC 2
RP GND
EMPH IN
CAM Y IN
DEEMPH OUT
BPF ADJ
RF SWP
CAP FG
CN300 45P
H.P L OUT
H.P GND
H.P R OUT
KEY AD0
VTR MODE SW
KEY AD1
SIRCS SIG
HI SCK
HI SI
HI SO
CS MECAM
PBV
CC DOWN SW
MV STBY
MV RESET
EVER 3V
REC VOB
REC VDW
DS VDW
CAM HD
CAM DD ON
VTR DD ON
BATT/EXT
EJECT SW
ZOOM SW
S/S SW
CAM+STBY SW R
DIG 3V
VTR UNREG
DIG GND
MT 5V
MT UNREG GND
EVF UNREG
EVF 15V
EVF 5V
EVF Y
EVF GND
EVF C
DEW LED
CN403 8P
COM GND
M-SW(A)
M-SW(B)
M-SW(C)
LM(-)
LM(+)
CN101 11P
1CH A(X)
1CH A(Y)
1CH A(G)
2CH A(Y)
2CH A(X)
2CH A(G)
CH(X)
CH(Y)
FE(G)
FE(Y)
FE(X)
CN400 10P
PG
FG-PG COM
FG
COM
W
V
U
CN401 12P
FG OUT
OFF SET ADJ
STAND BY
FRC
GND
VS
VCC2
VCC1
SS GND
DEW
CN402 15P
GND
TAPE TOP(C)
HI8 MP
S REEL(-)
S REEL(+)
ME/MP
REC PROOF
TAPE END(C)
TAPE LED(A)
HALL COM
T REEL(-)
T REEL(+)
SENSOR VCC
TAPE LED(K)
C LOCK SW
FFC-183
M SW (LM)
HEAD
DRUM
CAP
LS
MD B-MECHA
CN480 45P
CF-43 BOARD
CN481 8P
EVF C
TALLY LED
EVF Y
EVF GND
EVF 5V
EVF 15V
EVF UNREG
UNREG GND
CN482 6P
VTR MODE SW
CAM+STBY SW
GND
SEIDEN GND
LCD GND
LCD VCC
(TR520E MODEL)
CN483 24P
LCD SEG19
LCD SEG18
LCD SEG17
LCD SEG16
LCD SEG15
LCD SEG14
LCD SEG13
LCD SEG12
LCD SEG11
LCD SEG10
LCD SEG09
LCD SEG08
LCD SEG07
LCD SEG06
LCD SEG05
LCD SEG04
LCD SEG03
LCD SEG02
LCD SEG01
LCD SEG00
LCD COM1
LCD COM2
LCD COM3
LCD COM3
LANC
J480


10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
(TR520E MODEL)
(STEADY SHOT)
CN650 18P
FP-402
TZ-5 BOARD
CN701 16P
CN702 18P
67P
RD
CN302 38P
FFC-183
CN300 45P
DD-80P BOARD
S002
EJECT
CN003 38P
ZOOM SW
S003
START/STOP
S001
STANBY
S004
J001
(BATTERY)
CRT
VF-102P BOARD
W901
CN901
CN902
FP-283
(TR520E MODEL)
LCD
BL
FP-427
PW-113
BOARD
CN584 4P
CN583 6P
CAMERA
S490
PLAYER
S491
CN401 12P
CN402 15P
DRUM
CAP
LS
MD B-MECHA
CN480 45P
CN481 8P
CN482 6P
CF-43 BOARD
FFC-205
(TR520E MODEL)
CN483 24P
LANC
J480

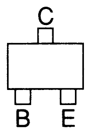
FRAME SCHEMATIC DIAGRAM

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

- **For printed wiring boards.**
- •—— : indicated a lead wire mounted on the component side.
- ▬ :Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)
- ● :Through hole is omitted.
- Printed wiring board which has four layers structure but inner two layers' patterns are omitted.

Caution:
SIDE A: The pattern face side which is seen when the upper case is opened.
SIDE B: The opposite pattern face side to the pattern seen when the upper case is opened.

- Chip parts (3-terminal transistor)



C: Collector
B: Base
E: Emitter

- **For schematic diagrams.**
- Caution when replacing chip parts..
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistor are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/10W unless otherwise noted.
  kΩ: 1000Ω, MΩ, : 1000kΩ.
- All capacitors are in µF unless otherwise noted. pF : µ µF. 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repair. *
- ▬ : B+ Line. *
- ▬▬▬ : B− Line. *
- ⇨ : IN/OUT direction of (+,−) B LINE. *
- Circled numbers refer to waveforms. *
- Signal name
  *E/−L→E/$\overline{L}$ *−VAPB→$\overline{\text{VAPB}}$
  −EDIT→$\overline{\text{EDIT}}$ *VAPB→VAPB

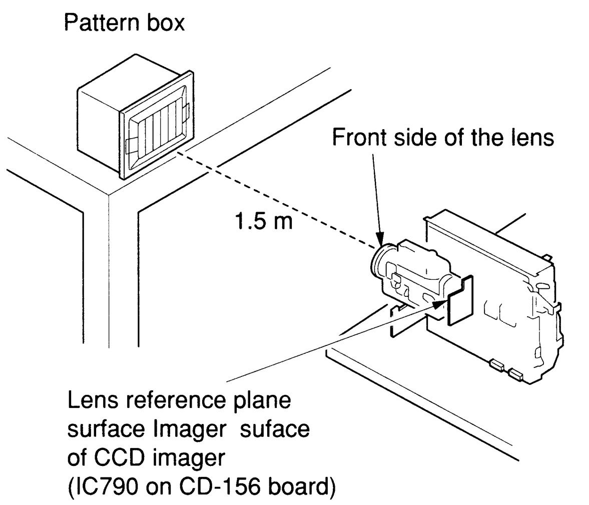
NOTE: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- * : indicated by the color red.

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values * and reference waveforms.
  (VOM of DC 10 MΩ input impedance is used.).
- Voltage values change depending upon input impedance of VOM used.)

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

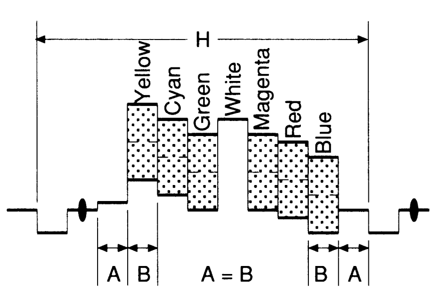


Fig. a (Video output terminal output waveform)

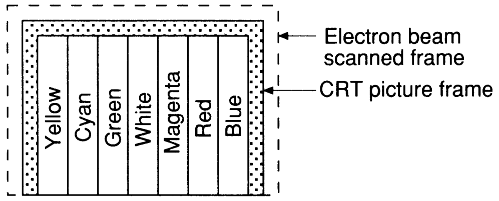


Fig. b (Picture on monitor TV)

Note: Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spéc-ifie.

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

VC-167P BOARD

C061	(B)F-2	C203	(B)F-3	C412	(B)B-9	C557	(A)C-3	C750	(A)F-7	IC604	(A)G-4	Q065	(A)E-2	R085	(B)E-2	R182	(A)
C072	(A)D-7	C204	(B)E-3	C413	(A)A-9	C558	(B)C-2	C751	(A)F-6	IC701	(A)F-5	Q101	(A)A-5	R086	(A)D-2	R183	(A)
C073	(B)D-6	C205	(B)F-3	C414	(A)A-8	C561	(B)A-2	C754	(A)E-7	IC702	(B)F-6	Q102	(A)B-5	R087	(B)E-2	R184	(A)
C075	(A)F-2	C206	(B)F-3	C415	(A)A-7	C571	(A)D-1	C755	(A)F-6	IC703	(B)E-6	Q104	(B)B-6	R088	(B)E-2	R185	(B)
C076	(B)E-2	C207	(A)E-4	C416	(B)D-9	C572	(A)D-1	C757	(A)F-6	IC704	(B)F-6	Q106	(B)A-6	R091	(B)E-2	R186	(B)
C077	(B)E-2	C208	(A)E-4	C417	(A)C-9	C573	(A)E-1	C758	(B)E-6	IC705	(A)F-7.	Q107	(B)A-6	R092	(B)E-2	R187	(B)
C078	(B)E-2	C209	(B)F-4	C418	(A)B-9	C574	(A)D-1	C759	(B)E-7	IC706	(B)F-8	Q108	(B)B-4	R101	(B)B-6	R188	(B)
C101	(B)A-4	C210	(A)F-3	C419	(B)C-9	C575	(A)D-1	C760	(A)G-8	IC707	(A)F-8	Q109	(B)B-4	R102	(A)B-4	R189	(B)
C102	(B)A-5	C211	(A)F-3	C420	(A)C-9	C576	(A)D-1	C761	(A)F-9	IC708	(A)G-5	Q110	(A)B-4	R103	(A)B-5	R190	(B)
C103	(B)A-4	C212	(B)F-4	C421	(A)C-9	C577	(A)D-1	C772	(A)E-8	IC709	(B)G-9	Q111	(A)B-4	R104	(A)A-5	R191	(B)
C104	(B)A-5	C213	(B)F-3	C423	(A)A-7	C578	(B)D-1	C773	(A)E-6	IC710	(B)G-7	Q112	(A)B-5	R105	(A)B-5	R192	(B)
C106	(A)A-6	C214	(B)F-3	C424	(A)C-9	C602	(A)F-3	C774	(A)E-6			Q113	(A)B-5	R106	(A)B-5	R193	(B)
C107	(B)B-6	C215	(A)E-3	C425	(B)B-9	C603	(A)F-3	C775	(A)E-6	L061	(A)E-1	Q114	(B)B-6	R107	(B)B-5	R194	(A)
C108	(B)A-6	C216	(B)G-2	C426	(B)A-9	C604	(A)G-2			L062	(B)D-6	Q120	(A)C-5	R108	(B)B-5	R196	(B)
C109	(B)A-6	C217	(B)G-2	C427	(B)A-9	C605	(B)F-2	CN060	(B)F-1	L063	(A)G-2	Q123	(B)B-3	R109	(B)B-5	R197	(B)
C110	(B)A-6	C218	(A)D-3	C428	(A)A-9	C606	(A)F-3	CN101	(B)A-5	L101	(A)A-4	Q124	(A)B-3	R110	(B)B-6	R201	(B)
C111	(A)A-4	C219	(B)F-4	C429	(B)A-9	C607	(A)F-3	CN102	(A)B-1	L102	(A)A-5	Q125	(A)B-3	R111	(B)B-5	R202	(B)
C112	(A)A-4	C223	(A)D-4	C430	(B)A-9	C608	(A)F-3	CN300	(B)B-8	L103	(A)B-6	Q126	(A)C-3	R114	(B)B-5	R203	(B)
C113	(B)A-4	C224	(A)E-5	C431	(A)A-8	C609	(A)G-2	CN301	(A)E-10	L104	(B)B-6	Q129	(B)A-3	R115	(B)C-4	R204	(A)
C114	(A)A-4	C225	(A)E-5	C432	(A)A-9	C610	(A)G-2	CN400	(B)A-6	L105	(B)B-5	Q130	(B)A-3	R116	(A)B-4	R210	(A)
C115	(A)A-5	C226	(B)D-5	C433	(A)A-9	C611	(B)G-3	CN401	(B)A-7	L106	(A)B-5	Q131	(B)B-3	R117	(B)B-4	R211	(A)
C116	(B)A-5	C227	(B)D-5	C434	(B)B-8	C612	(B)G-3	CN402	(B)A-9	L107	(A)B-6	Q202	(B)F-4	R120	(A)B-4	R212	(B)
C117	(A)A-5	C228	(A)E-5	C435	(A)A-9	C613	(B)F-5	CN403	(B)A-3	L108	(A)B-5	Q206	(A)E-4	R121	(A)B-4	R213	(B)
C118	(A)A-5	C229	(B)D-5	C436	(A)A-8	C614	(B)F-4	CN501	(B)B-1	L109	(A)B-5	Q208	(A)D-2	R122	(A)B-4	R214	(B)
C119	(B)A-5	C230	(B)D-5	C437	(B)A-7	C615	(B)F-4	CN601	(B)G-3	L113	(B)B-5	Q212	(A)C-3	R123	(A)B-4	R215	(B)
C120	(B)A-5	C231	(A)E-3	C438	(B)A-7	C616	(A)G-4	CN701	(B)F-5	L114	(B)B-3	Q213	(A)C-4	R125	(A)B-5	R216	(B)
C121	(B)B-5	C232	(A)E-3	C439	(B)A-7	C618	(B)G-3	CN702	(A)F-9	L115	(B)B-3	Q214	(A)C-4	R126	(A)B-4	R218	(A)
C122	(B)B-5	C233	(A)D-2	C441	(A)A-7	C619	(B)G-3			L116	(A)C-3	Q215	(B)E-5	R127	(A)B-5	R219	(B)
C123	(B)B-5	C234	(A)D-4	C442	(B)A-10	C620	(A)G-2	D101	(B)B-4	L118	(A)C-3	Q216	(A)D-2	R128	(A)B-5	R220	(B)
C124	(A)B-5	C235	(A)D-4	C443	(B)A-9	C701	(B)G-5	D102	(B)B-3	L119	(A)A-4	Q217	(A)D-2	R129	(A)B-5	R221	(A)
C125	(A)B-5	C236	(A)D-4	C444	(A)A-7	C702	(B)G-5	D103	(A)C-4	L120	(B)B-4	Q218	(B)D-2	R130	(A)B-5	R222	(B)
C127	(B)B-5	C237	(B)D-4	C445	(A)A-7	C703	(B)G-5	D201	(B)E-5	L121	(A)B-4	Q219	(A)C-3	R131	(A)B-5	R223	(A)
C128	(B)B-5	C238	(B)D-3	C446	(A)A-7	C704	(B)F-5	D202	(A)F-3	L202	(B)F-3	Q221	(A)F-5	R132	(A)B-6	R225	(B)
C129	(B)B-5	C240	(A)E-3	C447	(A)A-6	C706	(B)F-5	D203	(A)C-4	L203	(B)E-4	Q222	(A)D-2	R133	(A)B-6	R227	(A)
C130	(A)B-5	C242	(A)C-5	C448	(B)A-6	C707	(B)G-5	D301	(B)B-9	L207	(A)E-5	Q223	(B)D-2	R134	(A)B-5	R228	(A)
C134	(B)B-4	C243	(B)F-3	C449	(B)A-7	C708	(B)G-5	D302	(B)B-8	L210	(B)D-3	Q224	(B)D-2	R141	(B)B-4	R229	(A)
C135	(A)A-4	C244	(B)D-4	C450	(A)A-6	C710	(A)F-5	D309	(B)G-4	L211	(B)D-4	Q226	(A)F-4	R149	(B)C-4	R230	(B)
C136	(A)B-4	C245	(B)E-4	C451	(B)A-6	C711	(A)G-6	D310	(B)G-5	L212	(A)C-5	Q227	(B)D-5	R150	(B)B-3	R232	(B)
C137	(A)B-4	C246	(A)D-4	C452	(A)A-6	C712	(B)G-6	D311	(B)G-6	L213	(B)F-3	Q301	(A)B-9	R152	(B)B-4	R234	(B)
C138	(A)B-5	C247	(B)D-2	C453	(A)A-6	C713	(A)G-6	D312	(B)G-8	L214	(B)D-6	Q302	(B)B-9	R153	(A)B-3	R235	(B)
C139	(A)B-5	C248	(A)C-2	C456	(A)B-9	C714	(A)F-6	D313	(B)G-9	L215	(B)E-5	Q303	(A)E-9	R154	(A)B-3	R239	(A)
C140	(A)B-6	C249	(A)C-2	C458	(A)A-6	C715	(B)F-6	D317	(A)G-6	L216	(B)E-3	Q400	(B)A-9	R155	(A)B-3	R241	(B)
C141	(A)B-5	C252	(B)D-5	C502	(A)A-2	C717	(A)G-6	D318	(A)G-7	L400	(A)D-8	Q401	(B)A-9	R156	(B)B-3	R243	(B)
C142	(A)B-5	C254	(A)F-5	C504	(B)B-2	C718	(B)G-6	D319	(B)G-8	L401	(A)B-9	Q501	(B)A-2	R157	(B)B-3	R244	(A)
C143	(A)B-6	C256	(A)D-3	C505	(B)A-2	C719	(A)E-6	D701	(A)G-6	L570	(B)E-2	Q507	(B)A-2	R158	(B)B-3	R247	(A)
C148	(B)B-3	C257	(A)F-4	C514	(B)A-2	C720	(B)F-5	D702	(A)G-5	L601	(B)G-2	Q570	(A)C-1	R159	(B)B-3	R248	(A)
C149	(B)B-3	C260	(B)D-6	C515	(A)A-3	C722	(A)F-6	D703	(A)F-5	L602	(B)G-4	Q601	(A)F-3	R160	(A)B-4	R249	(B)
C150	(B)B-3	C261	(A)C-3	C520	(B)C-2	C724	(B)G-6	D705	(B)G-8	L603	(A)G-3	Q602	(B)F-2	R161	(A)B-4	R254	(A)
C152	(A)B-3	C263	(B)D-2	C521	(B)B-2	C725	(A)E-5	D706	(B)G-6	L701	(A)F-6	Q603	(B)G-3	R162	(A)B-4	R255	(A)
C153	(B)B-4	C265	(B)D-3	C522	(B)B-3	C726	(A)F-5			L703	(A)G-6	Q701	(B)G-5	R163	(A)B-4	R256	(B)
C154	(B)B-3	C266	(B)D-3	C523	(B)B-2	C727	(B)F-5	IC061	(A)D-6	L704	(A)F-5	Q703	(B)G-10	R164	(A)B-4	R257	(B)
C155	(B)B-3	C267	(B)E-5	C526	(A)B-1	C728	(B)E-5	IC101	(B)B-5	L706	(A)G-8	Q704	(B)G-10	R165	(B)B-4	R259	(A)
C156	(B)B-4	C269	(B)E-3	C529	(A)B-2	C729	(B)E-5	IC201	(B)E-4	L707	(A)G-7	Q705	(B)G-9	R166	(A)B-4	R260	(A)
C157	(B)C-3	C270	(A)E-3	C531	(A)C-1	C730	(A)G-5	IC202	(B)E-3	L708	(A)G-7	Q706	(B)G-9	R167	(A)B-4	R261	(A)
C160	(B)B-5	C271	(A)E-3	C532	(B)B-3	C731	(A)F-6	IC204	(A)F-4	L709	(A)G-9	Q750	(B)E-9	R168	(A)B-4	R262	(A)
C162	(B)A-3	C400	(B)C-8	C533	(A)B-3	C732	(B)E-6	IC400	(B)C-8	L710	(B)F-10	Q752	(B)E-8	R169	(A)B-3	R265	(B)
C163	(B)A-3	C401	(B)C-8	C534	(B)B-3	C734	(B)G-6	IC401	(A)D-9	L712	(A)F-7			R170	(A)A-5	R266	(A)
C164	(A)A-3	C402	(B)B-9	C535	(B)B-2	C735	(A)G-8	IC402	(A)C-9	L714	(A)F-6	R062	(B)D-6	R171	(A)A-5	R267	(B)
C165	(A)A-3	C403	(B)C-8	C537	(B)B-2	C736	(A)G-8	IC403	(A)A-7	L715	(A)F-7	R077	(A)F-2	R172	(B)A-5	R268	(B)
C166	(A)B-3	C404	(B)D-8	C540	(B)C-2	C739	(B)G-7	IC404	(A)A-9	L716	(A)G-9	R078	(A)F-2	R173	(B)A-5	R270	(B)
C167	(A)B-3	C405	(A)C-9	C543	(A)C-2	C740	(B)G-8	IC405	(B)C-9	L751	(A)E-9	R079	(A)F-2	R176	(B)C-3	R271	(A)
C168	(B)A-4	C406	(B)C-9	C546	(B)C-1	C741	(B)G-9	IC501	(A)B-2			R080	(A)F-2	R177	(A)C-3	R272	(B)
C169	(A)B-4	C407	(A)D-8	C548	(A)C-2	C742	(B)G-9	IC570	(B)D-2	Q061	(A)F-2	R081	(B)E-2	R178	(B)A-3	R273	(A)
C170	(A)C-4	C408	(A)D-8	C550	(B)A-2	C745	(B)E-8	IC601	(A)G-3	Q062	(A)F-1	R082	(B)E-2	R179	(B)A-3	R274	(A)
C171	(B)C-6	C409	(A)A-10	C555	(A)C-2	C746	(B)F-9	IC602	(A)F-2	Q063	(B)E-2	R083	(B)E-2	R180	(A)A-3	R276	(A)
C202	(B)E-3	C411	(B)B-9	C556	(A)C-2	C749	(A)F-7	IC603	(B)G-4	Q064	(A)E-2	R084	(A)E-2	R181	(A)A-3	R277	(A)

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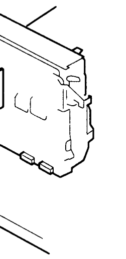

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4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

VC-167P BOARD

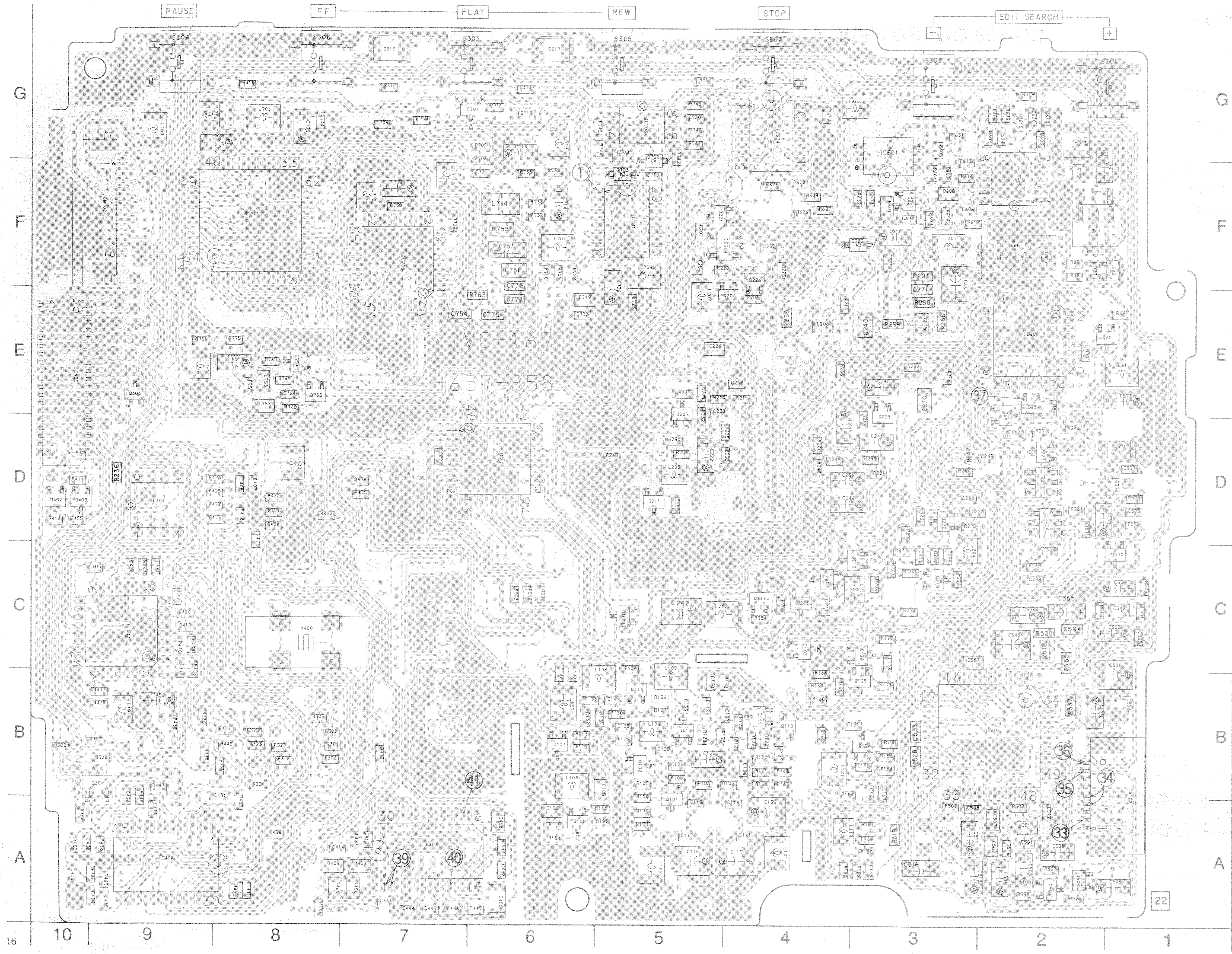
C061	(B)F-2
C072	(A)D-7
C073	(B)D-6
C075	(A)F-2
C076	(B)E-2
C077	(B)E-2
C078	(B)E-2
C101	(B)A-4
C102	(B)A-5
C103	(B)A-4
C104	(B)A-5
C106	(A)A-6
C107	(B)B-6
C108	(B)A-6
C109	(B)A-6
C110	(B)A-6
C111	(A)A-4
C112	(A)A-4
C113	(B)A-4
C114	(A)A-4
C115	(A)A-5
C116	(B)A-5
C117	(A)A-5
C118	(A)A-5
C119	(B)A-5
C120	(B)A-5
C121	(B)B-5
C122	(B)B-5
C123	(B)B-5
C124	(A)B-5
C125	(A)B-5
C127	(B)B-5
C128	(B)B-5
C129	(B)B-5
C130	(A)B-5
C134	(B)B-4
C135	(A)A-4
C136	(A)B-4
C137	(A)B-4
C138	(A)B-5
C139	(A)B-5
C140	(A)B-6
C141	(A)B-5
C142	(A)B-5
C143	(A)B-6
C148	(B)B-3
C149	(B)B-3
C150	(B)B-3
C152	(A)B-3
C153	(B)B-4
C154	(B)B-3
C155	(B)B-3
C156	(B)B-4
C157	(B)C-3
C160	(B)B-5
C162	(B)A-3
C163	(B)A-3
C164	(A)A-3
C165	(A)A-3
C166	(A)B-3
C167	(A)B-3
C168	(B)A-4
C169	(A)B-4
C170	(A)C-4
C171	(B)C-6
C202	(B)E-3
C203	(B)F-3
C204	(B)E-3
C205	(B)F-3
C206	(B)F-3
C207	(A)E-4
C208	(A)E-4
C209	(B)F-4
C210	(A)F-3
C211	(A)F-3
C212	(B)F-4
C213	(B)F-3
C214	(B)F-3
C215	(A)E-3
C216	(B)G-2
C217	(B)G-2
C218	(A)D-3
C219	(B)F-4
C223	(A)D-4
C224	(A)E-5
C225	(A)E-5
C226	(B)D-5
C227	(B)D-5
C228	(A)E-5
C229	(B)D-5
C230	(B)D-5
C231	(A)E-3
C232	(A)E-3
C233	(A)D-2
C234	(A)D-4
C235	(A)D-4
C236	(A)D-4
C237	(B)D-4
C238	(B)D-3
C240	(A)E-3
C242	(A)C-5
C243	(B)F-3
C244	(B)D-4
C245	(B)E-4
C246	(A)D-4
C247	(B)D-2
C248	(A)C-2
C249	(A)C-2
C252	(B)D-5
C254	(A)F-5
C256	(A)D-3
C257	(A)F-4
C260	(B)D-6
C261	(A)C-3
C263	(B)D-2
C265	(B)D-3
C266	(B)D-3
C267	(B)E-5
C269	(B)E-3
C270	(A)E-3
C271	(A)E-3
C400	(B)C-8
C401	(B)C-8
C402	(B)B-9
C403	(B)C-8
C404	(B)D-8
C405	(A)C-9
C406	(B)C-9
C407	(A)D-8
C408	(A)D-8
C409	(A)A-10
C411	(B)B-9
C412	(B)B-9
C413	(A)A-9
C414	(A)A-8
C415	(A)A-7
C416	(B)D-9
C417	(A)C-9
C418	(A)B-9
C419	(B)C-9
C420	(A)C-9
C421	(A)C-9
C423	(A)A-7
C424	(A)C-9
C425	(B)B-9
C426	(B)A-9
C427	(B)A-9
C428	(A)A-9
C429	(B)A-9
C430	(B)A-9
C431	(A)A-8
C432	(A)A-9
C433	(A)A-9
C434	(B)B-8
C435	(A)A-9
C436	(A)A-8
C437	(B)A-7
C438	(B)A-7
C439	(B)A-7
C441	(A)A-7
C442	(B)A-10
C443	(B)A-9
C444	(A)A-7
C445	(A)A-7
C446	(A)A-7
C447	(A)A-6
C448	(B)A-6
C449	(B)A-7
C450	(A)A-6
C451	(B)A-6
C452	(A)A-6
C453	(A)A-6
C456	(A)B-9
C458	(A)A-6
C502	(A)A-2
C504	(B)B-2
C505	(B)A-2
C514	(B)A-2
C515	(A)A-3
C520	(B)C-2
C521	(B)B-2
C522	(B)B-3
C523	(B)B-2
C526	(A)B-1
C529	(A)B-2
C531	(A)C-1
C532	(B)B-3
C533	(A)B-3
C534	(B)B-3
C535	(B)B-2
C537	(B)B-2
C540	(B)C-2
C543	(A)C-2
C546	(B)C-1
C548	(A)C-2
C550	(B)A-2
C555	(A)C-2
C556	(A)C-2
C557	(A)C-3
C558	(B)C-2
C561	(B)A-2
C571	(A)D-1
C572	(A)D-1
C573	(A)E-1
C574	(A)D-1
C575	(A)D-1
C576	(A)D-1
C577	(A)D-1
C578	(B)D-1
C602	(A)F-3
C603	(A)F-3
C604	(A)G-2
C605	(B)F-2
C606	(A)F-3
C607	(A)F-3
C608	(A)F-3
C609	(A)G-2
C610	(A)G-2
C611	(B)G-3
C612	(B)G-3
C613	(B)F-5
C614	(B)F-4
C615	(B)F-4
C616	(A)G-4
C618	(B)G-3
C619	(B)G-3
C620	(A)G-2
C701	(B)G-5
C702	(B)G-5
C703	(B)G-5
C704	(B)F-5
C706	(B)F-5
C707	(B)G-5
C708	(B)G-5
C710	(A)F-5
C711	(A)G-6
C712	(B)G-6
C713	(A)G-6
C714	(A)F-6
C715	(B)F-6
C717	(A)G-6
C718	(B)G-6
C719	(A)E-6
C720	(B)F-5
C722	(A)F-6
C724	(B)G-6
C725	(A)E-5
C726	(A)F-5
C727	(B)F-5
C728	(B)E-5
C729	(B)E-5
C730	(A)G-5
C731	(A)F-6
C732	(B)E-6
C734	(B)G-6
C735	(A)G-8
C736	(A)G-8
C739	(B)G-7
C740	(B)G-8
C741	(B)G-9
C742	(B)G-9
C745	(B)E-8
C746	(B)F-9
C749	(A)F-7
C750	(A)F-7
C751	(A)F-6
C754	(A)E-7
C755	(A)F-6
C757	(A)F-6
C758	(B)E-6
C759	(B)E-7
C760	(A)G-8
C761	(A)F-9
C772	(A)E-8
C773	(A)E-6
C774	(A)E-6
C775	(A)E-6
CN060	(B)F-1
CN101	(B)A-5
CN102	(A)B-1
CN300	(B)B-8
CN301	(A)E-10
CN400	(B)A-6
CN401	(B)A-7
CN402	(B)A-9
CN403	(B)A-3
CN501	(B)B-1
CN601	(B)G-3
CN701	(B)F-5
CN702	(A)F-9
D101	(B)B-4
D102	(B)B-3
D103	(A)C-4
D201	(B)E-5
D202	(A)F-3
D203	(A)C-4
D301	(B)B-9
D302	(B)B-8
D309	(B)G-4
D310	(B)G-5
D311	(B)G-6
D312	(B)G-8
D313	(B)G-9
D317	(A)G-6
D318	(A)G-7
D319	(B)G-8
D701	(A)G-6
D702	(A)G-5
D703	(A)F-5
D705	(B)G-8
D706	(B)G-6
IC061	(A)D-6
IC101	(B)B-5
IC201	(B)E-4
IC202	(B)E-3
IC204	(A)F-4
IC400	(B)C-8
IC401	(A)D-9
IC402	(A)C-9
IC403	(A)A-7
IC404	(A)A-9
IC405	(B)C-9
IC501	(A)B-2
IC570	(B)D-2
IC601	(A)G-3
IC602	(A)F-2
IC603	(B)G-4
IC604	(A)G-4
IC701	(A)F-5
IC702	(B)F-6
IC703	(B)E-6
IC704	(B)F-6
IC705	(A)F-7
IC706	(B)F-8
IC707	(A)F-8
IC708	(A)G-5
IC709	(B)G-9
IC710	(B)G-7
L061	(A)E-1
L062	(B)D-6
L063	(A)G-2
L101	(A)A-4
L102	(A)A-5
L103	(A)B-6
L104	(B)B-6
L105	(B)B-5
L106	(A)B-5
L107	(A)B-6
L108	(A)B-5
L109	(A)B-5
L113	(B)B-5
L114	(B)B-3
L115	(B)B-3
L116	(A)C-3
L118	(A)C-3
L119	(A)A-4
L120	(B)B-4
L121	(A)B-4
L202	(B)F-3
L203	(B)E-4
L207	(A)E-5
L210	(B)D-3
L211	(B)D-4
L212	(A)C-5
L213	(B)F-3
L214	(B)D-6
L215	(B)E-5
L216	(B)E-3
L400	(A)D-8
L401	(A)B-9
L570	(B)E-2
L601	(B)G-2
L602	(B)G-4
L603	(A)G-3
L701	(A)F-6
L703	(A)G-6
L704	(A)F-5
L706	(A)G-8
L707	(A)G-7
L708	(A)G-7
L709	(A)G-9
L710	(B)F-10
L712	(A)F-7
L714	(A)F-6
L715	(A)F-7
L716	(A)G-9
L751	(A)E-9
Q061	(A)F-2
Q062	(A)F-1
Q063	(B)E-2
Q064	(A)E-2
Q065	(A)E-2
Q101	(A)A-5
Q102	(A)B-5
Q104	(B)B-6
Q106	(B)A-6
Q107	(B)A-6
Q108	(B)B-4
Q109	(B)B-4
Q110	(A)B-4
Q111	(A)B-4
Q112	(A)B-5
Q113	(A)B-5
Q114	(B)B-6
Q120	(A)C-5
Q123	(B)B-3
Q124	(A)B-3
Q125	(A)B-3
Q126	(A)C-3
Q129	(B)A-3
Q130	(B)A-3
Q131	(B)B-3
Q202	(B)F-4
Q206	(A)E-4
Q208	(A)D-2
Q212	(A)C-3
Q213	(A)C-4
Q214	(A)C-4
Q215	(B)E-5
Q216	(A)D-2
Q217	(A)D-2
Q218	(B)D-2
Q219	(A)C-3
Q221	(A)F-5
Q222	(A)D-2
Q223	(B)D-2
Q224	(B)D-2
Q226	(A)F-4
Q227	(B)D-5
Q301	(A)B-9
Q302	(B)B-9
Q303	(A)E-9
Q400	(B)A-9
Q401	(B)A-9
Q501	(B)A-2
Q507	(B)A-2
Q570	(A)C-1
Q601	(A)F-3
Q602	(B)F-2
Q603	(B)G-3
Q701	(B)G-5
Q703	(B)G-10
Q704	(B)G-10
Q705	(B)G-9
Q706	(B)G-9
Q750	(B)E-9
Q752	(B)E-8
R062	(B)D-6
R077	(A)F-2
R078	(A)F-2
R079	(A)F-2
R080	(A)F-2
R081	(B)E-2
R082	(B)E-2
R083	(B)E-2
R084	(A)E-2
R085	(B)E-2
R086	(A)D-2
R087	(B)E-2
R088	(B)E-2
R091	(B)E-2
R092	(B)E-2
R101	(B)B-6
R102	(A)B-4
R103	(A)B-5
R104	(A)A-5
R105	(A)B-5
R106	(A)B-5
R107	(B)B-5
R108	(B)B-5
R109	(B)B-5
R110	(B)B-6
R111	(B)B-5
R114	(B)B-5
R115	(B)C-4
R116	(A)B-4
R117	(B)B-4
R120	(A)B-4
R121	(A)B-4
R122	(A)B-4
R123	(A)B-4
R125	(A)B-5
R126	(A)B-4
R127	(A)B-5
R128	(A)B-5
R129	(A)B-5
R130	(A)B-5
R131	(A)B-5
R132	(A)B-6
R133	(A)B-6
R134	(A)B-5
R141	(B)B-4
R149	(B)C-4
R150	(B)B-3
R152	(B)B-4
R153	(A)B-3
R154	(A)B-3
R155	(A)B-3
R156	(B)B-3
R157	(B)B-3
R158	(B)B-3
R159	(B)B-3
R160	(A)B-4
R161	(A)B-4
R162	(A)B-4
R163	(A)B-4
R164	(A)B-4
R165	(B)B-4
R166	(A)B-4
R167	(A)B-4
R168	(A)B-4
R169	(A)B-3
R170	(A)A-5
R171	(A)A-5
R172	(B)A-5
R173	(B)A-5
R176	(B)C-3
R177	(A)C-3
R178	(B)A-3
R179	(B)A-3
R180	(A)A-3
R181	(A)A-3
R182	(A)A-4
R183	(A)A-3
R184	(A)B-4
R185	(B)A-3
R186	(B)A-3
R187	(B)A-3
R188	(B)B-6
R189	(B)B-6
R190	(B)A-6
R191	(B)B-6
R192	(B)A-6
R193	(B)A-6
R194	(A)A-6
R196	(B)A-6
R197	(B)B-3
R201	(B)F-3
R202	(B)F-3
R203	(B)F-3
R204	(A)E-4
R210	(A)E-5
R211	(A)E-4
R212	(B)F-4
R213	(B)F-4
R214	(B)G-1
R215	(B)G-1
R216	(B)G-2
R218	(A)E-3
R219	(B)D-4
R220	(B)D-4
R221	(A)D-3
R222	(B)E-4
R223	(A)F-4
R225	(B)D-2
R227	(A)C-3
R228	(A)F-5
R229	(A)D-4
R230	(B)D-4
R232	(B)E-5
R234	(B)E-4
R235	(B)D-4
R239	(A)E-4
R241	(B)E-4
R243	(B)D-3
R244	(A)D-2
R247	(A)D-2
R248	(A)D-4
R249	(B)D-3
R254	(A)C-4
R255	(A)C-4
R256	(B)D-2
R257	(B)D-2
R259	(A)D-3
R260	(A)D-4
R261	(A)D-2
R262	(A)C-2
R265	(B)D-2
R266	(A)E-3
R267	(B)D-4
R268	(B)D-2
R270	(B)D-2
R271	(A)D-2
R272	(B)D-2
R273	(A)C-3
R274	(A)C-3
R276	(A)C-3
R277	(A)C-3
R279	(B)C-3
R281	(B)D-3
R283	(B)D-3
R284	(B)D-2
R286	(B)D-2
R287	(B)D-3
R289	(B)D-3
R290	(A)D-5
R291	(A)D-3
R293	(B)E-5
R294	(B)E-3
R295	(B)E-3
R296	(B)E-3
R297	(A)E-3
R298	(A)E-3
R299	(A)E-3
R301	(A)B-8
R302	(A)B-8
R303	(A)B-8
R304	(B)B-8
R305	(A)B-8
R307	(B)B-8
R308	(A)B-9
R309	(A)A-10
R310	(B)G-5
R311	(B)G-9
R312	(B)G-7
R313	(B)G-6
R314	(A)G-6
R315	(A)G-2
R316	(A)G-5
R317	(A)G-7
R318	(A)G-8
R319	(B)B-9
R320	(B)B-9
R321	(A)B-9
R327	(A)B-8
R328	(A)B-8
R329	(A)B-8
R330	(A)B-9
R331	(A)B-8
R333	(B)D-9
R334	(B)G-8
R400	(B)B-7
R401	(B)B-7
R402	(B)B-7
R403	(B)C-7
R404	(B)C-7
R405	(B)C-7
R406	(B)C-7
R407	(B)C-7
R408	(B)B-7
R409	(B)B-7
R410	(B)B-7
R411	(A)D-10
R412	(B)C-7
R413	(B)C-7
R414	(B)C-7
R417	(B)C-8
R418	(A)D-8
R419	(B)C-7
R420	(A)D-8
R421	(A)D-8
R422	(A)D-8
R423	(B)D-9
R424	(B)C-9
R425	(A)D-8
R426	(A)D-8
R427	(B)C-9
R428	(B)C-9
R429	(B)A-9
R430	(B)B-8
R434	(A)B-9
R436	(B)D-9
R437	(A)B-9
R439	(A)C-9
R440	(A)C-9
R441	(A)C-9
R442	(A)C-9
R444	(B)A-10
R445	(B)B-10
R446	(B)A-10
R447	(A)B-9
R448	(A)A-9
R449	(A)B-8
R450	(A)A-8
R451	(B)A-8
R452	(A)A-8
R453	(B)A-8
R454	(B)A-8
R455	(A)A-10
R456	(A)A-9
R458	(A)A-7
R459	(A)A-8
R460	(A)A-8
R461	(A)A-8
R462	(B)A-7
R463	(B)A-7
R464	(B)A-7
R465	(B)A-6
R466	(B)C-9
R467	(B)A-9
R468	(A)A-9
R469	(A)A-9
R471	(A)D-8
R472	(A)D-8
R473	(A)D-8
R474	(A)D-7
R475	(A)D-7
R476	(B)C-7
R477	(B)C-7
R478	(B)C-7
R479	(A)B-7
R481	(B)A-9
R482	(B)A-9
R501	(A)A-3
R503	(A)C-6
R506	(A)C-6
R514	(B)C-2
R515	(A)C-2
R517	(A)C-2
R519	(A)A-3
R520	(A)C-2
R522	(B)A-2
R523	(A)B-3
R525	(A)C-1
R530	(B)A-2
R531	(B)A-1
R534	(B)B-2
R537	(A)B-2
R556	(B)A-1
R570	(B)C-1
R571	(A)D-2
R575	(A)D-1
R581	(B)D-1
R601	(A)F-3
R603	(A)F-3
R604	(A)F-3
R605	(A)G-3
R606	(B)F-3
R607	(A)G-2
R608	(A)G-2
R609	(A)G-2
R610	(A)G-2
R611	(B)F-2
R612	(A)F-3
R613	(A)F-3
R614	(A)F-3
R615	(B)F-3
R616	(A)F-3
R618	(B)F-2
R619	(B)G-2
R620	(B)G-2
R621	(B)G-2
R623	(A)F-4
R628	(A)F-4
R629	(A)F-4
R630	(B)G-3
R631	(A)G-3
R632	(A)F-3
R701	(B)G-5
R702	(B)G-5
R703	(B)F-5
R704	(B)G-5
R706	(A)G-6
R707	(A)G-6
R708	(B)F-9
R709	(A)F-6
R710	(A)F-6
R713	(B)G-8
R714	(B)G-7
R715	(B)G-9
R717	(B)G-9
R719	(B)E-8
R720	(B)E-8
R721	(B)E-8
R722	(B)F-9
R723	(B)F-9
R724	(B)E-9
R725	(B)E-6
R726	(B)G-7
R727	(B)G-7
R728	(B)G-7
R729	(B)G-6
R730	(B)F-7
R732	(A)F-6
R733	(A)F-6
R734	(A)F-6
R735	(A)F-6
R737	(B)F-9
R740	(A)G-5
R741	(A)G-5
R742	(A)G-5
R743	(A)G-5
R744	(A)G-5
R745	(A)G-5
R751	(A)E-9
R756	(B)E-8
R757	(A)E-8
R758	(B)G-9
R759	(B)G-9
R763	(A)E-6
R775	(A)E-8
S301	(A)G-1
S302	(A)G-3
S303	(A)G-6
S304	(A)G-9
S305	(A)G-5
S306	(A)G-8
S307	(A)G-4
X400	(A)C-8
X701	(B)G-6
X702	(B)G-8

VC-167P (MAIN) PRINTED WIRING BOARD

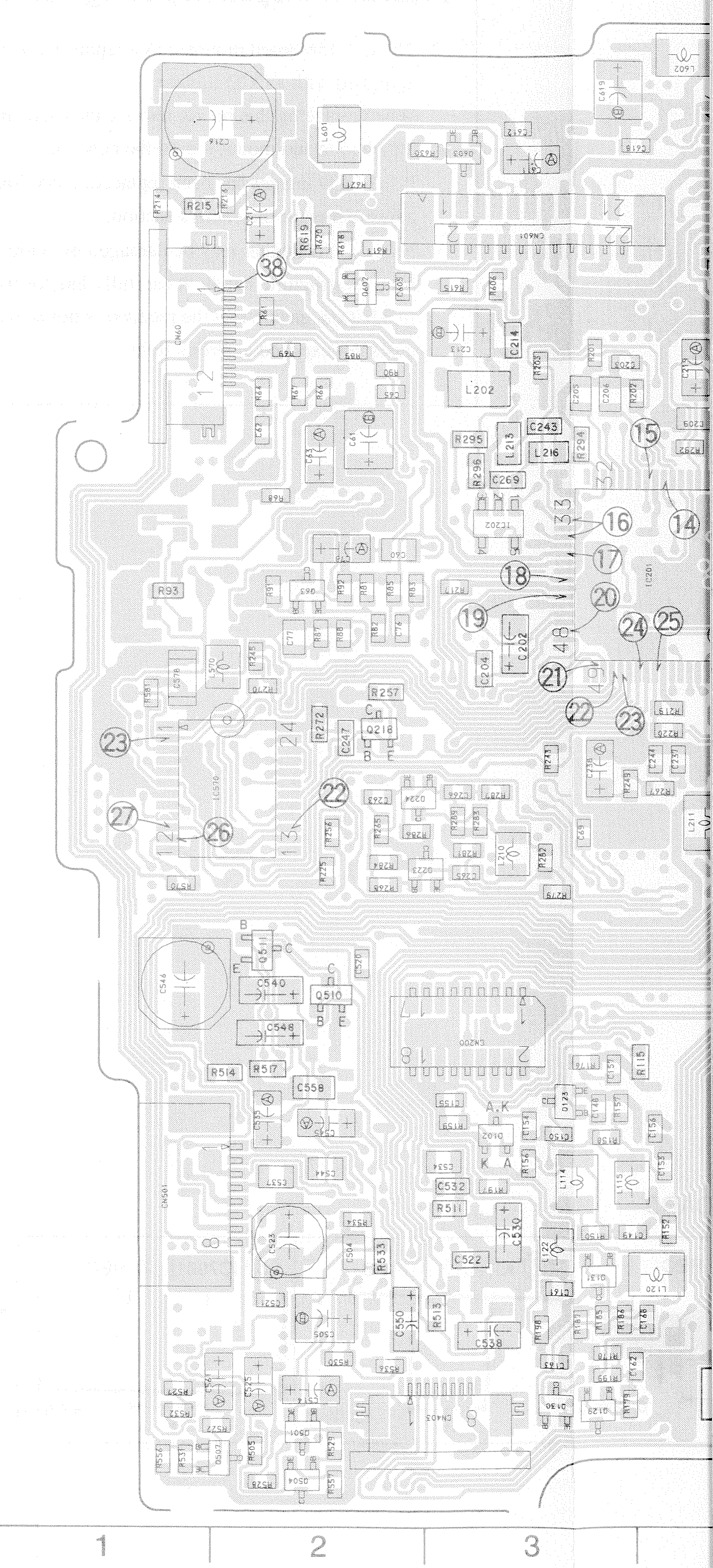
— Ref. No. VC-167P Board; 1,000 Series —

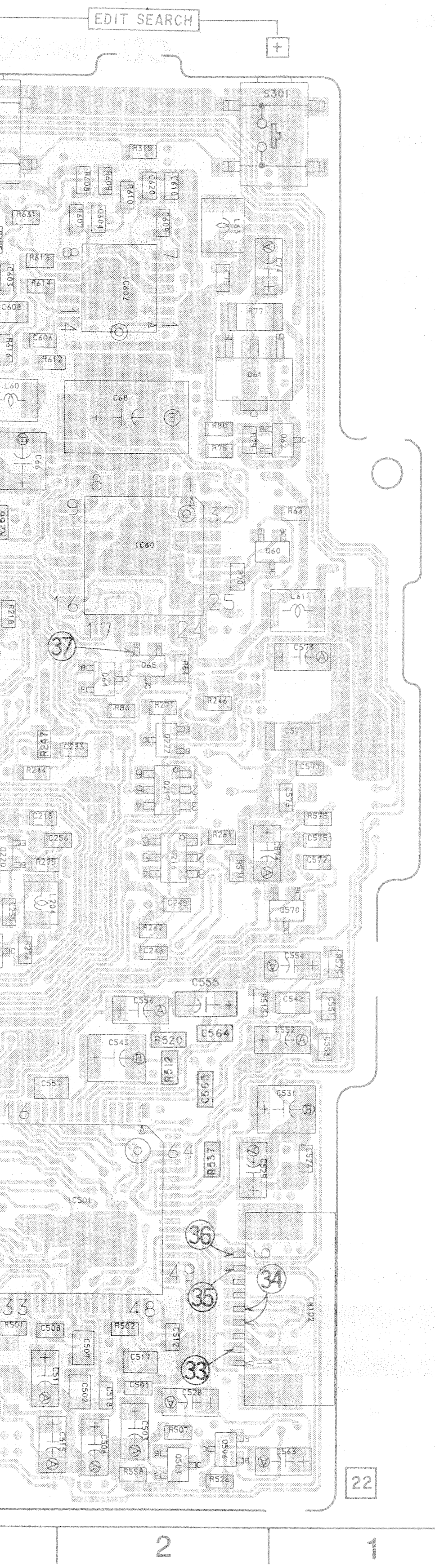
There are few cases that the part printed on this diagram isn't mounted in this model.

VC-167P BOARD (SIDE A)

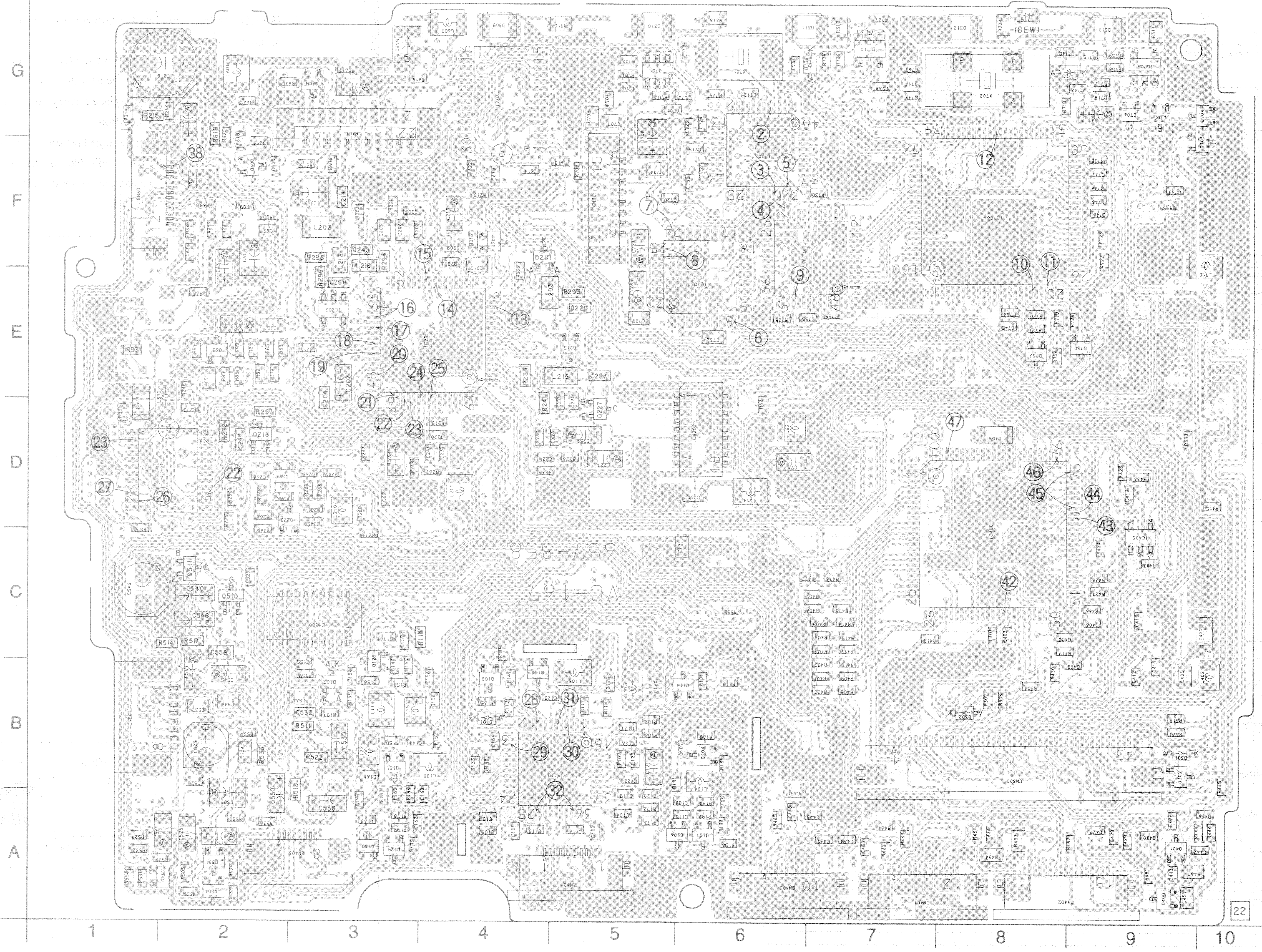

PAUSE
FF
PLAY
REW
STOP
EDIT SEARCH
−
+
S304
S306
S303
S305
S307
S302
S301
IC707
IC705
IC701
IC601
IC60
IC401
IC402
IC403
IC404
IC501
X400
VC-167
1-657-858
22
G
F
E
D
C
B
A
16
10
9
8
7
6
5
4
3
2
1

VC-167P BOARD (SIDE B)

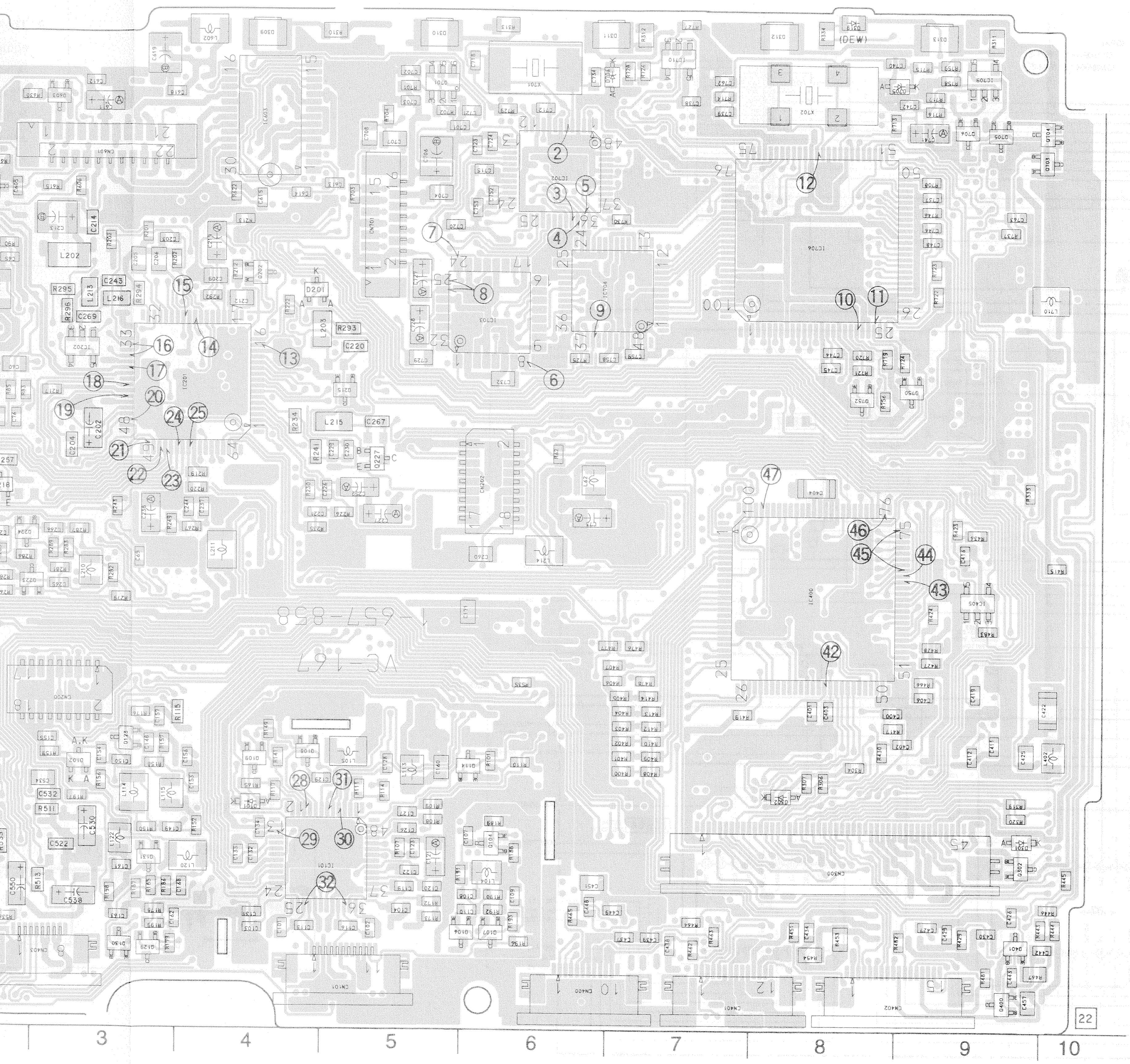

G
F
E
D
C
B
A
1
2
3


EDIT SEARCH
S301
22
2
1

VC-167P BOARD (SIDE B)


G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
22
(DEW)
1-657-858
VC-167
IC101
IC201
IC400
IC703
IC704
CN400
CN401
CN402
CN101

SIDE B)


1-657-858
VC-167
IC201
IC702
IC703
IC704
IC706
IC400
IC101
CN300
CN400
CN401
CN402
CN101
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
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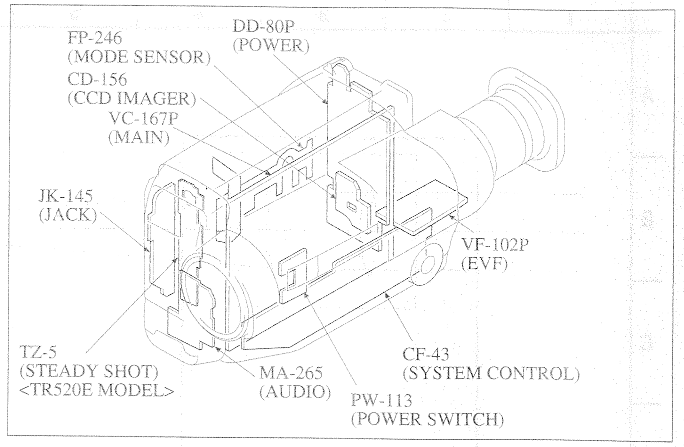
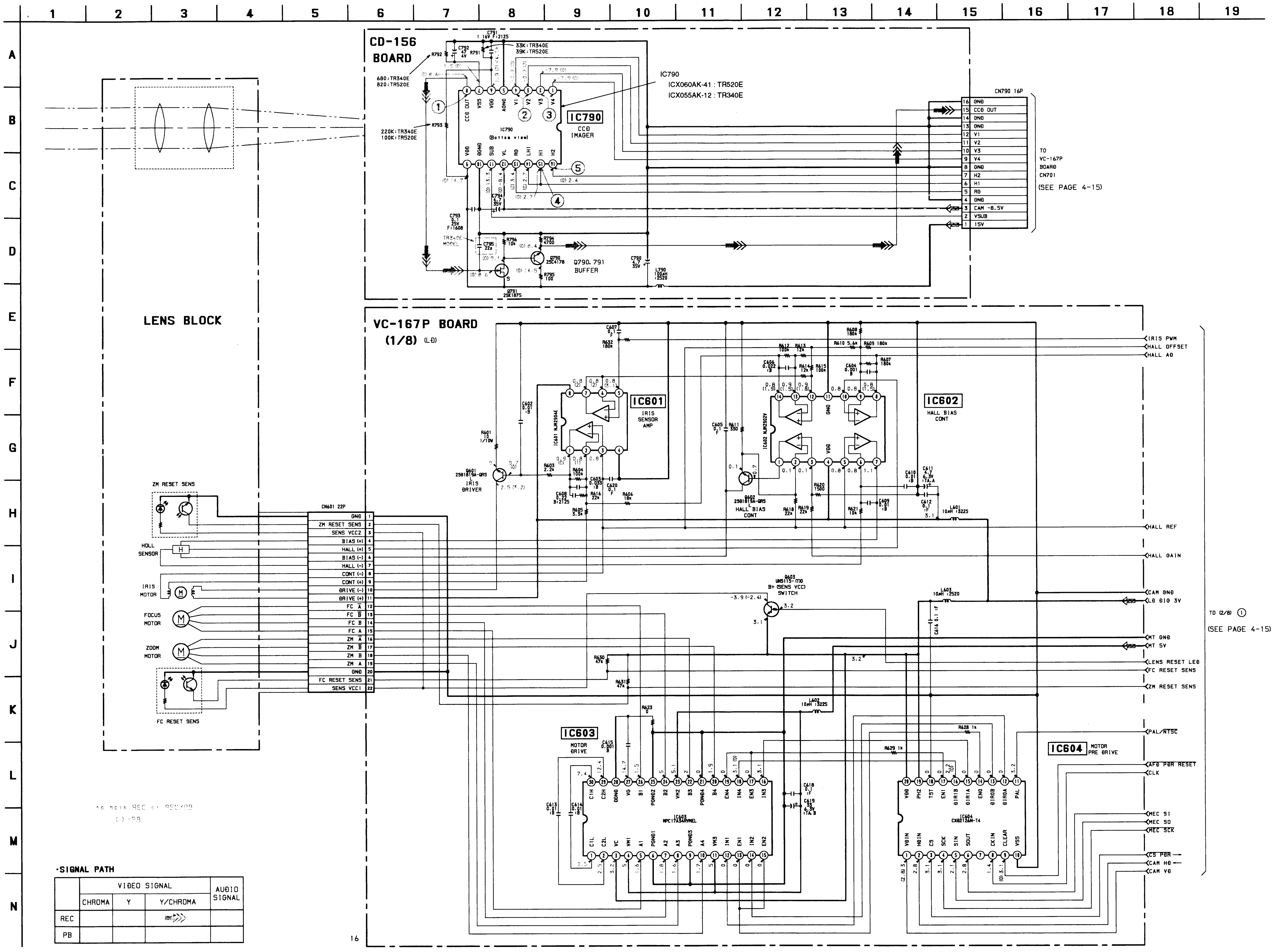
10


FP-246
(MODE SENSOR)
DD-80P
(POWER)
CD-156
(CCD IMAGER)
VC-167P
(MAIN)
JK-145
(JACK)
VF-102P
(EVF)
TZ-5
(STEADY SHOT)
<TR520E MODEL>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

VC-167P (CAMERA 1) , CD-156 (CCD IMAGER) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAMS

• See page 4-7 for VC-167P BOARD printed wiring board.

— Ref. No. VC-167P Board; 1,000 Series, CD-156 Board; 2,000 Series —


CD-156 BOARD
IC790
ICX060AK-41 : TR520E
ICX055AK-12 : TR340E
IC790 CCD IMAGER
IC790 (Bottom view)
Q790, 791 BUFFER
CN790 16P
16 GND
15 CCD OUT
14 GND
13 GND
12 V1
11 V2
10 V3
9 V4
8 GND
7 H2
6 H1
5 RG
4 GND
3 CAM -8.5V
2 VSUB
1 15V
TO VC-167P BOARD CN701 (SEE PAGE 4-15)
LENS BLOCK
ZM RESET SENS
HALL SENSOR
IRIS MOTOR
FOCUS MOTOR
ZOOM MOTOR
FC RESET SENS
CN601 22P
1 GND
2 ZM RESET SENS
3 SENS VCC2
4 BIAS (+)
5 HALL (+)
6 BIAS (-)
7 HALL (-)
8 CONT (-)
9 CONT (+)
10 DRIVE (-)
11 DRIVE (+)
12 FC A
13 FC B̄
14 FC B
15 FC Ā
16 ZM A
17 ZM B̄
18 ZM B
19 ZM Ā
20 GND
21 FC RESET SENS
22 SENS VCC1
VC-167P BOARD (1/8)
IC601 IRIS SENSOR AMP
Q601 IRIS DRIVER
IC602 HALL BIAS CONT
Q602 HALL BIAS CONT
Q603 B+ (SENS VCC) SWITCH
IC603 MOTOR DRIVE
IC604 MOTOR PRE DRIVE
IRIS PWM
HALL OFFSET
HALL AD
HALL REF
HALL GAIN
CAM GND
LD 010 3V
MT GND
MT 5V
LENS RESET LED
FC RESET SENS
ZM RESET SENS
PAL/NTSC
AFD PGR RESET
CLK
MEC SI
MEC SO
MEC SCK
CS PGR
CAM HD
CAM VD
TO (2/8) ① (SEE PAGE 4-15)
·SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
AUDIO SIGNAL
REC
PB

Prec

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Wi
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· As
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In
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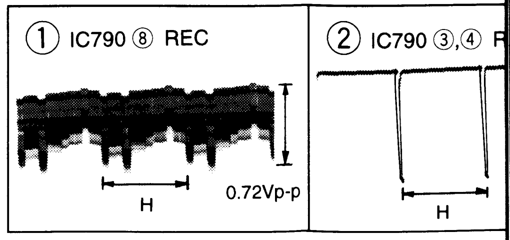
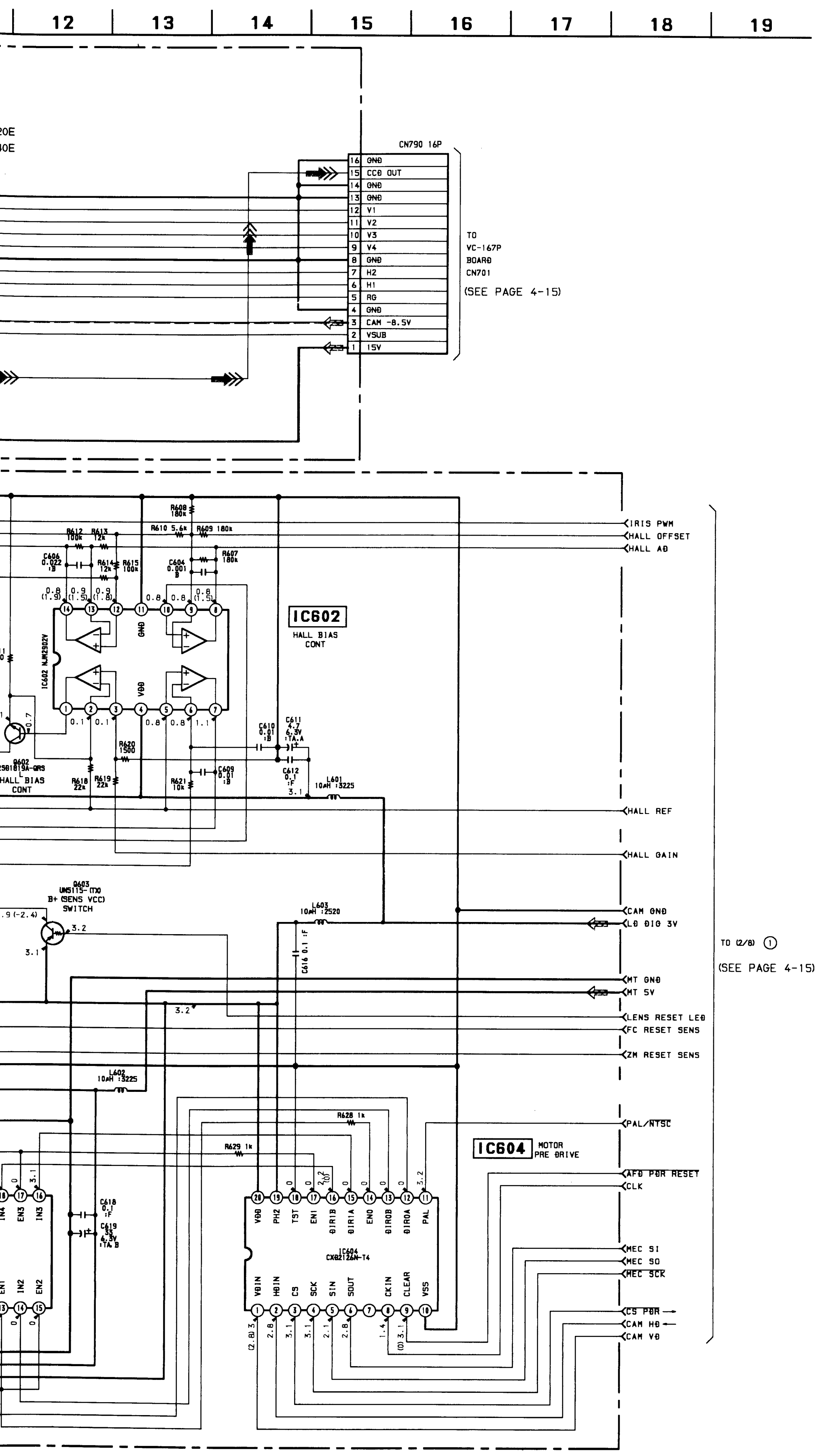
CD-156 BOARD



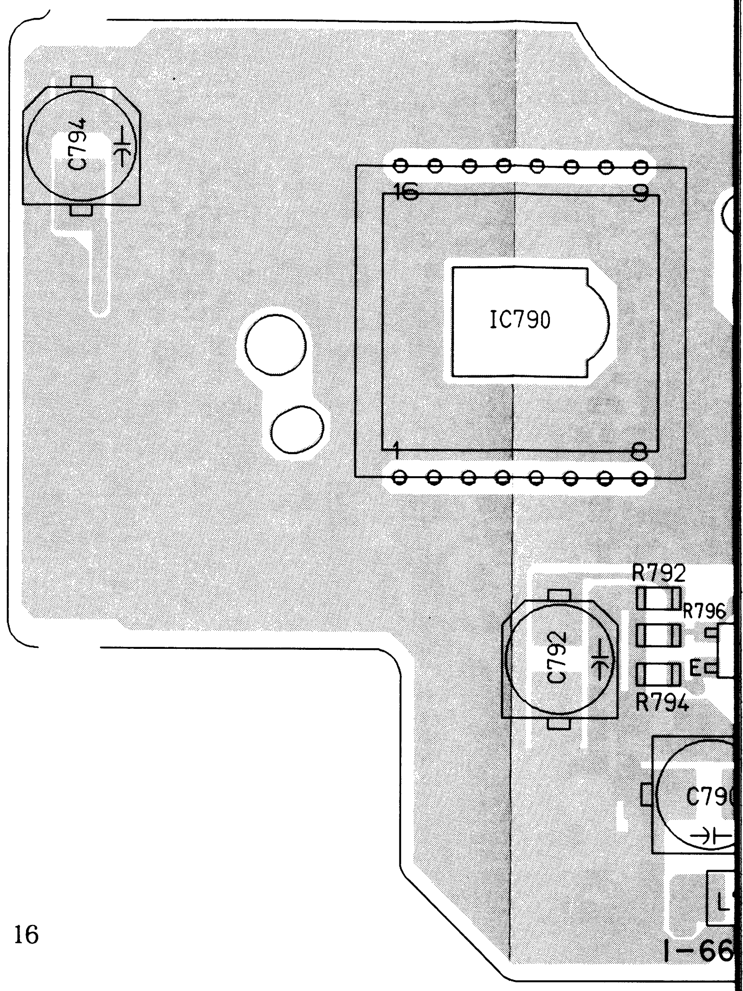
-167P BOARD printed wiring board.


12
13
14
15
16
17
18
19
CN790 16P
16 GND
15 CCD OUT
14 GND
13 GND
12 V1
11 V2
10 V3
9 V4
8 GND
7 H2
6 H1
5 RG
4 GND
3 CAM -8.5V
2 VSUB
1 15V
TO VC-167P BOARD CN701 (SEE PAGE 4-15)
IC602 HALL BIAS CONT
IRIS PWM
HALL OFFSET
HALL AD
HALL REF
HALL GAIN
CAM GND
LD DIO 3V
MT GND
MT 5V
LENS RESET LED
FC RESET SENS
ZM RESET SENS
PAL/NTSC
AFG PGR RESET
CLK
MEC SI
MEC SO
MEC SCK
CS PGR
CAM HD
CAM VD
TO (2/8) ① (SEE PAGE 4-15)
IC604 MOTOR PRE DRIVE
IC604 CXD2126AN-T4
Q603 UN5115-(TX) B+ (SENS VCC) SWITCH
Q602 HALL BIAS CONT
IC602 NJM2902V

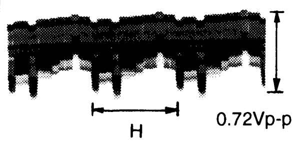
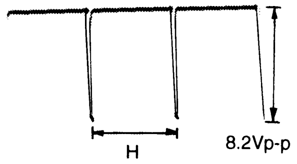
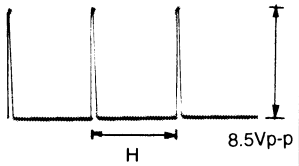
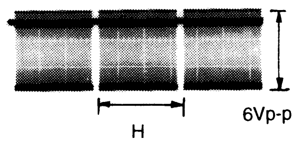
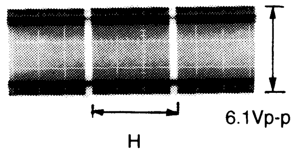
Precautions Upon Replacing CCD Imager

- The CD-156 board mounted as a repair part is not equipped with a CCD imager.
  When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
  In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

CD-156 BOARD (SIDE A)


C794
IC790
16
9
1
8
R792
R796
R794
C792
C79
L
16
1-66

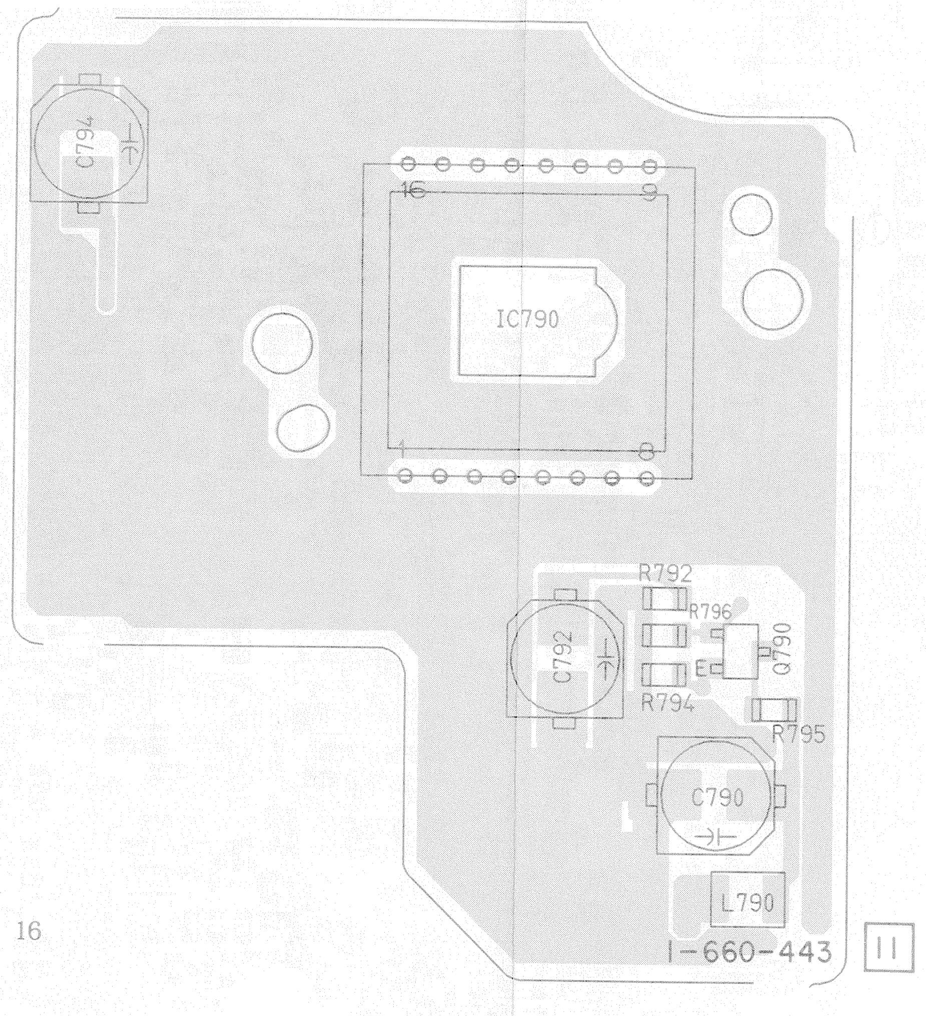
CD-156 BOARD

① IC790 ⑧ REC	② IC790 ③,④ REC	③ IC790 ①,② REC	④ IC790 ⑮ REC	⑤ IC790 ⑯ REC
 H 0.72Vp-p	 H 8.2Vp-p	 H 8.5Vp-p	 H 6Vp-p	 H 6.1Vp-p

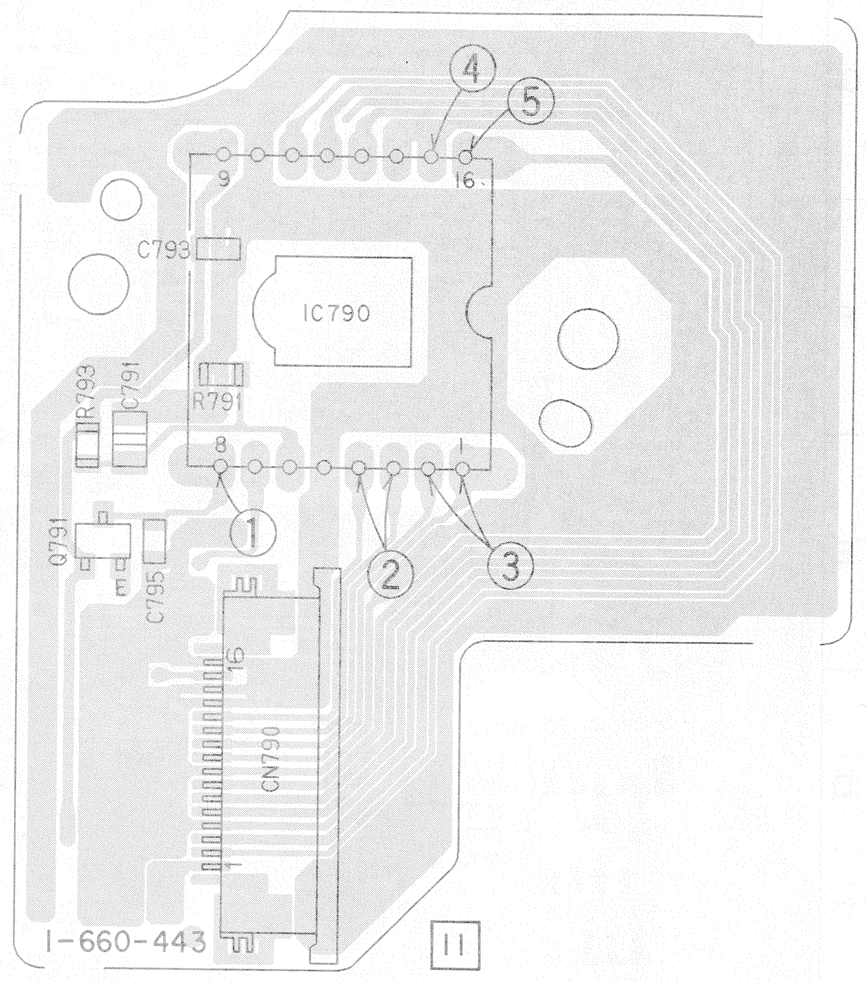
Precautions Upon Replacing CCD Imager

- The CD-156 board mounted as a repair part is not equipped with a CCD imager.
  When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC. In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

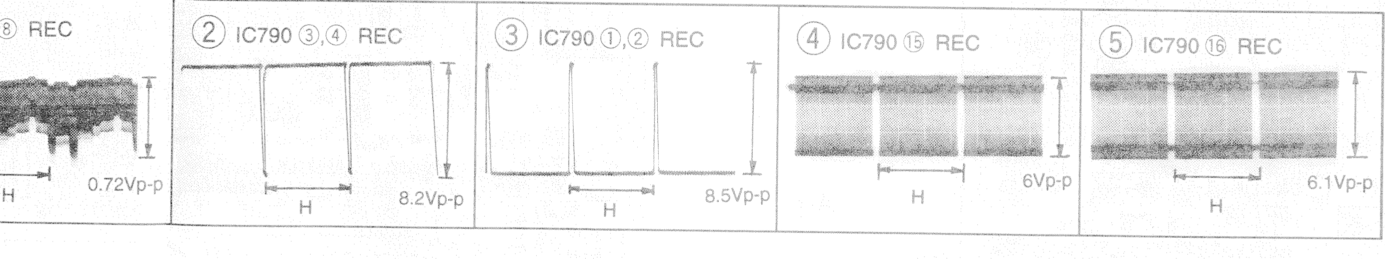
CD-156 BOARD (SIDE A)

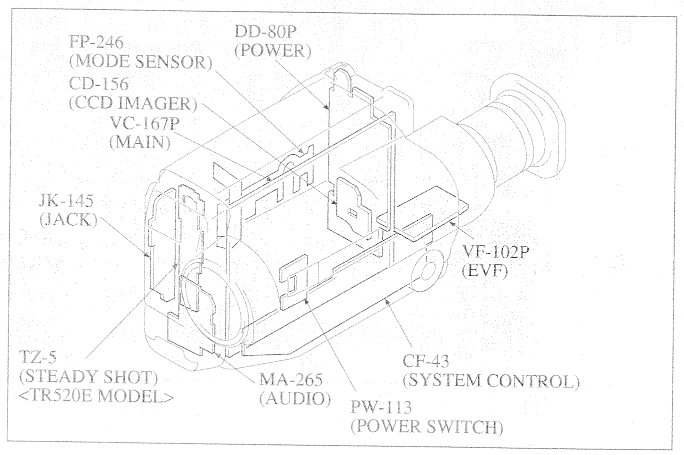

C794
16
9
IC790
1
8
R792
R796
Q790
C792
R794
R795
C790
L790
1-660-443
11

CD-156 BOARD (SIDE B)


④
⑤
9
16
C793
IC790
R793
C791
R791
8
1
Q791
①
②
③
C795
16
CN790
1-660-443
11

BOARD



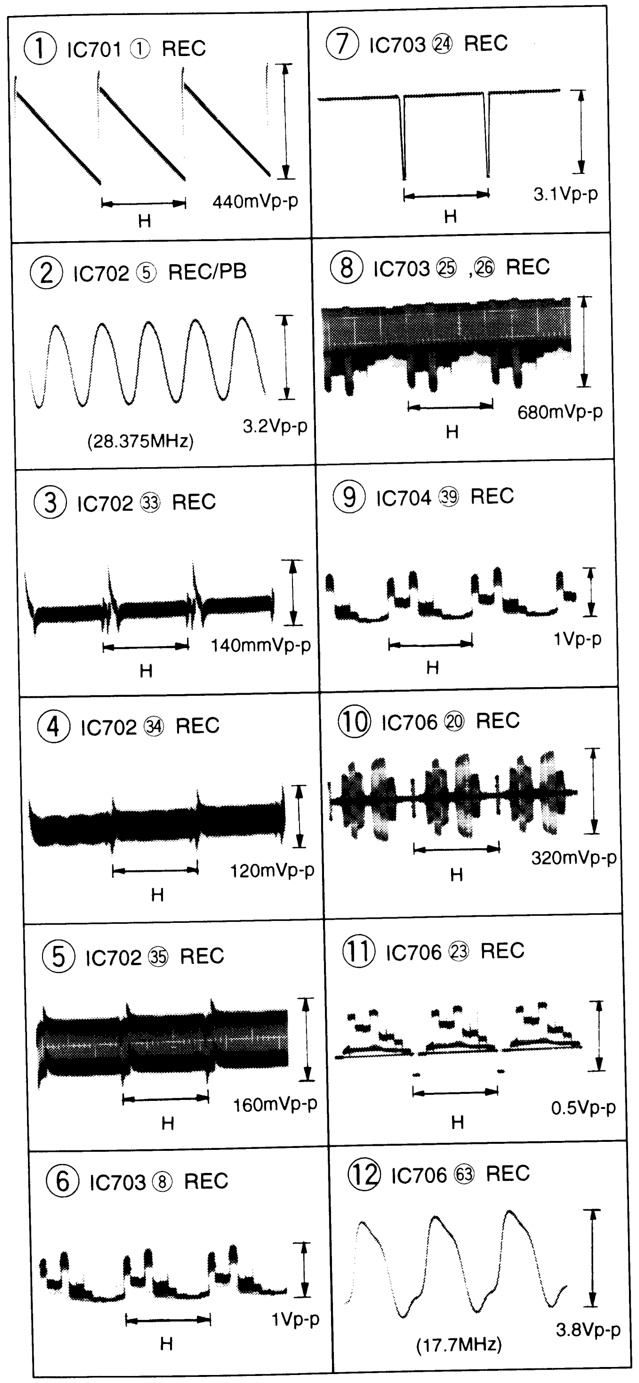

FP-246
(MODE SENSOR)
DD-80P
(POWER)
CD-156
(CCD IMAGER)
VC-167P
(MAIN)
JK-145
(JACK)
VF-102P
(EVF)
TZ-5
(STEADY SHOT)
<TR520E MODEL>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

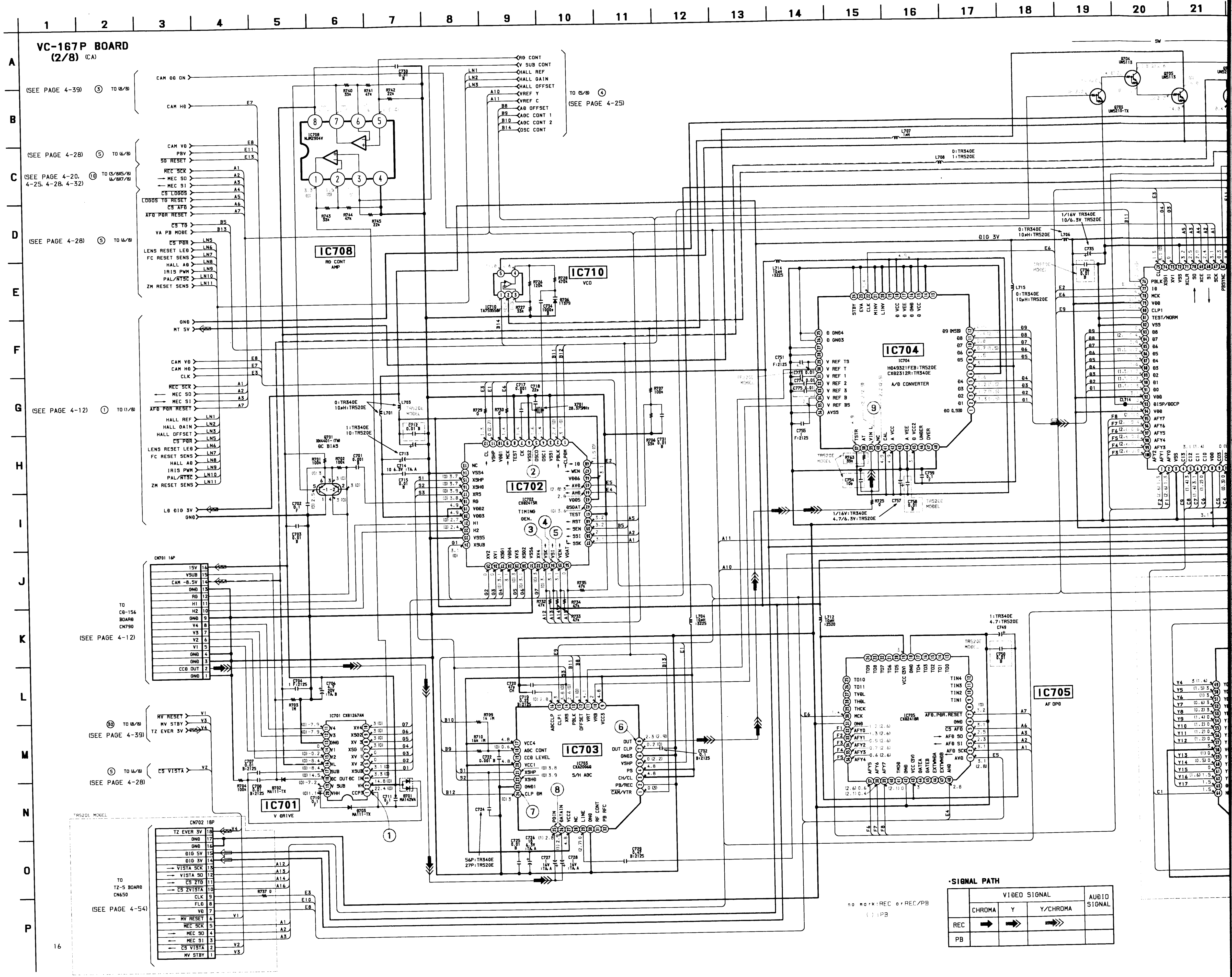
VC-167P (CAMERA 2) SCHEMATIC DIAGRAM

— Ref. No. VC-167P Board; 1,000 Series —

- See page 4-7 for VC-167P BOARD printed wiring board.

VC-167P BOARD

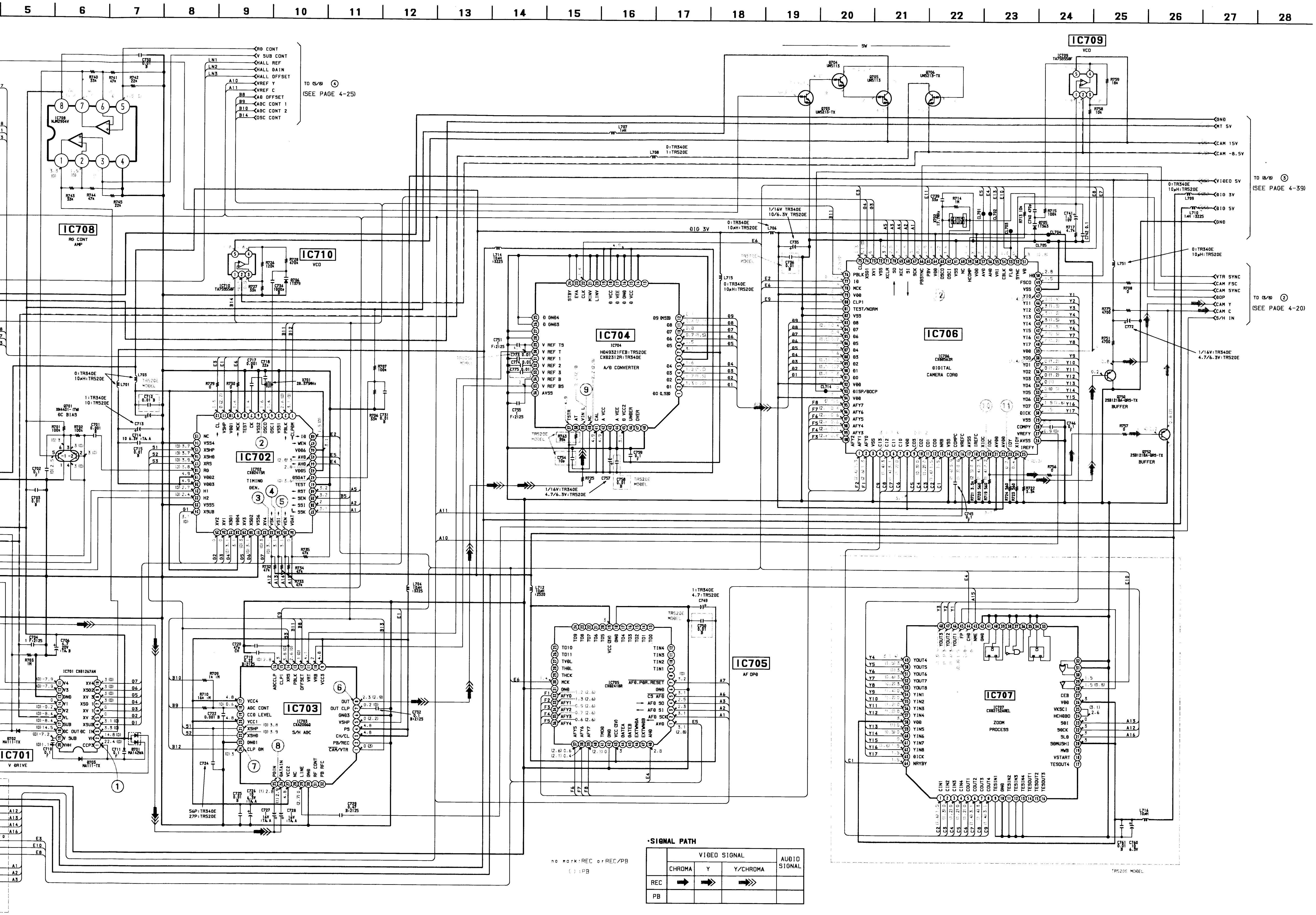



VC-167P BOARD
(2/8) (CA)
(SEE PAGE 4-39) ③ TO (8/8)
(SEE PAGE 4-28) ⑤ TO (6/8)
(SEE PAGE 4-20, 4-25, 4-28, 4-32) ⑩ TO (3/8)(5/8)(6/8)(7/8)
(SEE PAGE 4-12) ① TO (1/8)
(SEE PAGE 4-39) (50) TO (8/8)
(SEE PAGE 4-28) ⑤ TO (6/8)
(SEE PAGE 4-25) ④ TO (5/8)
TO CD-156 BOARD CN790 (SEE PAGE 4-12)
TO TZ-5 BOARD CN650 (SEE PAGE 4-54)
CAM DD ON
CAM HD
CAM VD
PBV
SG RESET
MEC SCK
MEC SO
MEC SI
CS LOGOS
LOGOS TG RESET
CS AFD
AFD PDR RESET
CS TG
VA PB MODE
CS PDR
LENS RESET LED
FC RESET SENS
HALL AD
IRIS PWM
PAL/NTSC
ZM RESET SENS
GND
MT 5V
CLK
HALL REF
HALL GAIN
HALL OFFSET
RG CONT
V SUB CONT
VREF Y
VREF C
AD OFFSET
AGC CONT 1
AGC CONT 2
OSC CONT
IC708 RG CONT AMP
IC708 NJM2904V
IC710 VCO
IC710 TA75S558F
IC702 TIMING GEN.
IC702 CXD2415R
IC704 A/D CONVERTER
IC704 H049321FEB:TR520E CXD2312R:TR340E
IC701 V DRIVE
IC701 CXD1267AN
IC703 CXA2006Q S/H AGC
IC705 AF DPD
IC705 CXD2418R
CN701 16P
CN702 18P
TR520E MODEL
X701 28.375MHz

·SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	
PB				

no mark:REC or REC/PB
( ):PB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21
22
23
24
25
26
27
28
IC708
RG CONT AMP
IC710
VCO
IC709
VCO
IC704
A/D CONVERTER
IC702
TIMING GEN.
IC706
DIGITAL CAMERA CORE
IC703
S/H AGC
IC705
AF OPD
IC707
ZOOM PROCESS
IC701
V DRIVE
TO (5/8) ④ (SEE PAGE 4-25)
TO (8/8) ③ (SEE PAGE 4-39)
TO (3/8) ② (SEE PAGE 4-20)
RG CONT
V SUB CONT
HALL REF
HALL GAIN
HALL OFFSET
VREF Y
VREF C
AB OFFSET
AGC CONT 1
AGC CONT 2
OSC CONT
GND
MT 5V
CAM 15V
CAM -8.5V
VIDEO 5V
DIG 3V
DIG 5V
VTR SYNC
CAM FSC
CAM SYNC
BOP
CAM Y
CAM C
S/H IN
BUFFER
TR520E MODEL

·SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛	⇛	
PB				

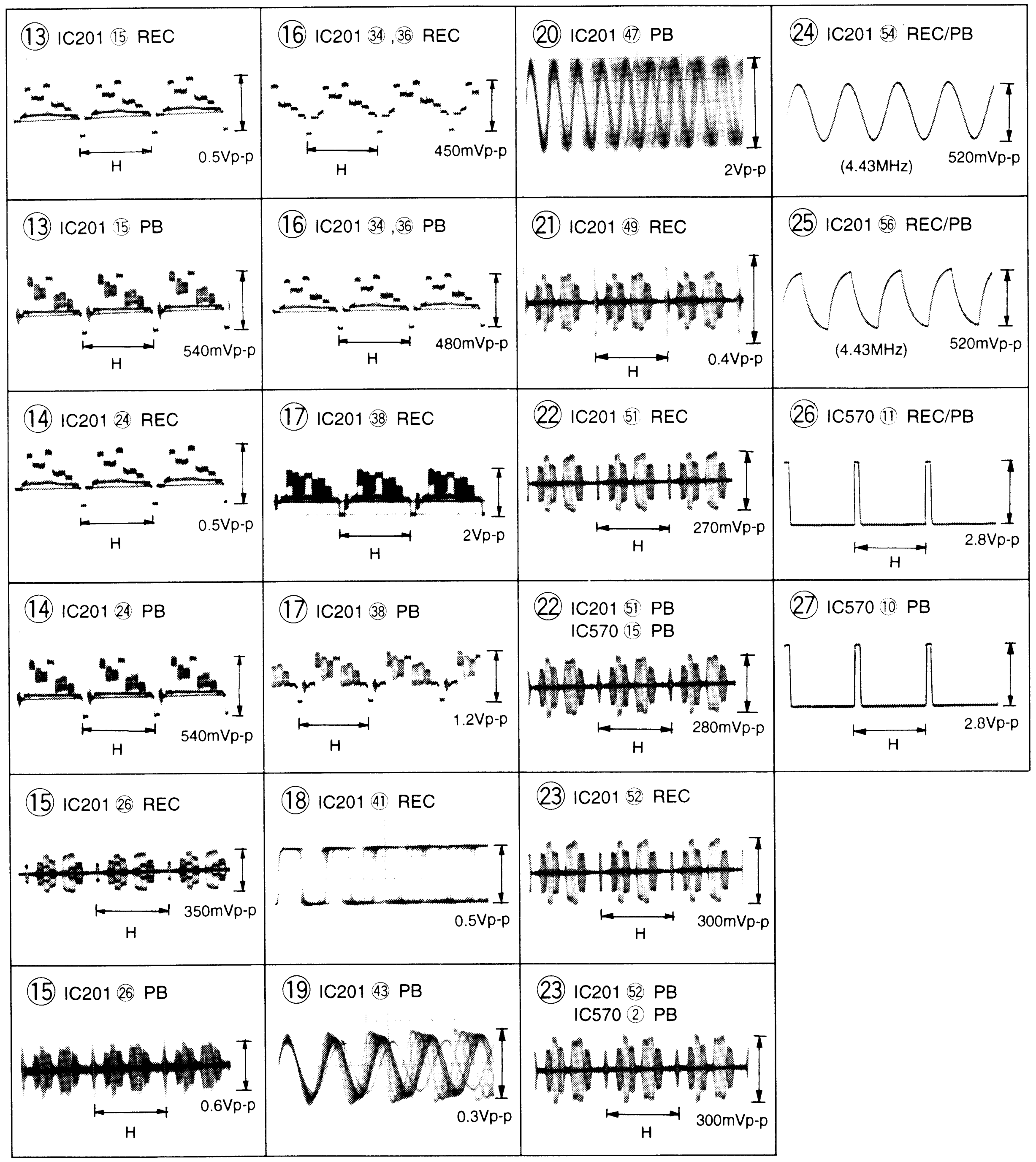
no mark:REC or REC/PB
( ):PB

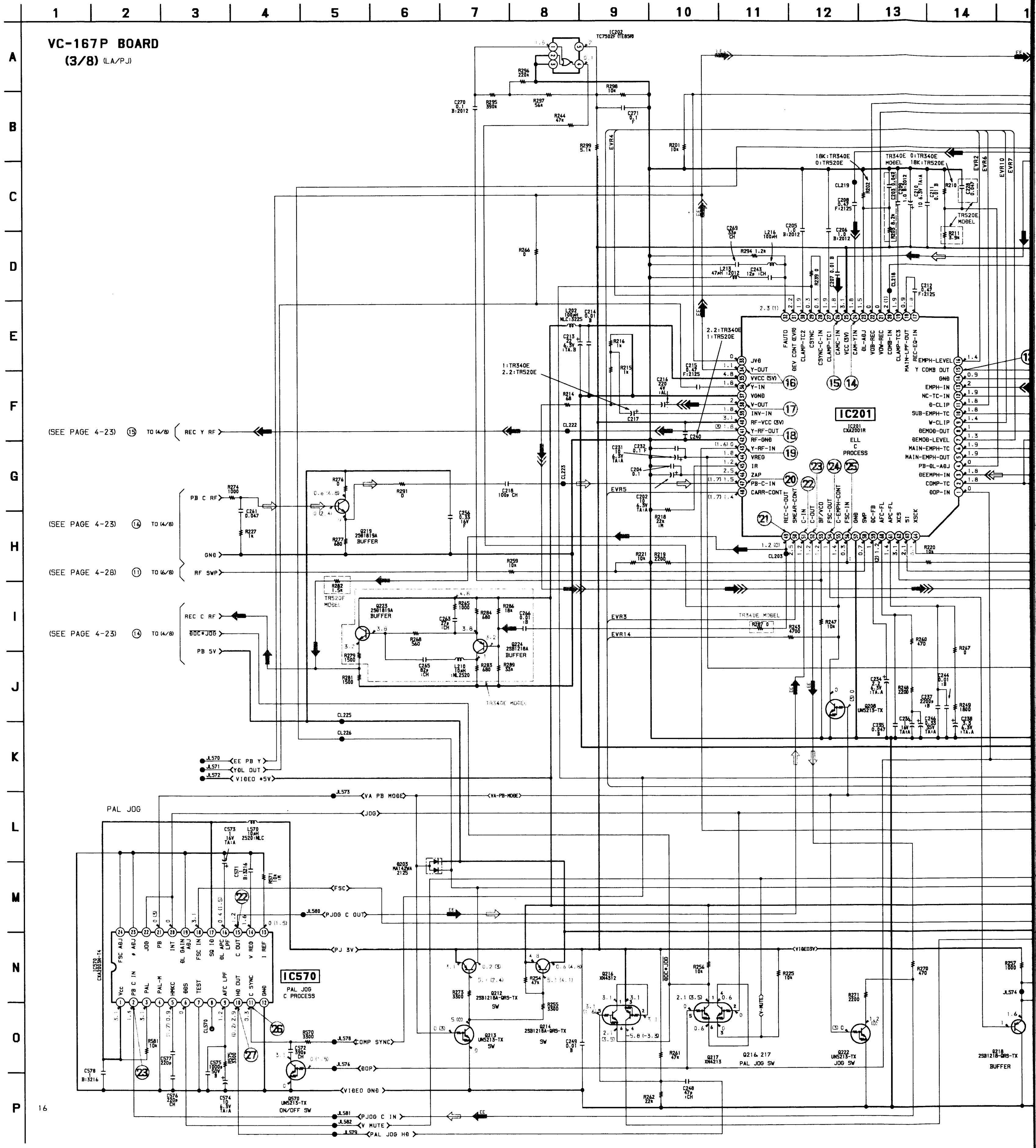
VC-167P (CAMERA 3) SCHEMATIC DIAGRAM

• See page 4-7 for VC-167P BOARD printed wiring board.

— Ref. No. VC-167P Board; 1,000 Series —

VC-167P BOARD




1
2
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4
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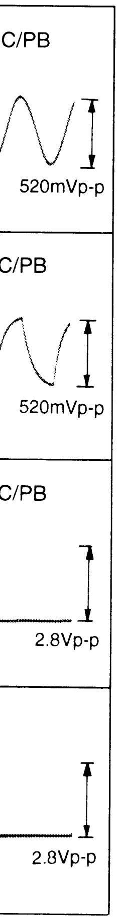
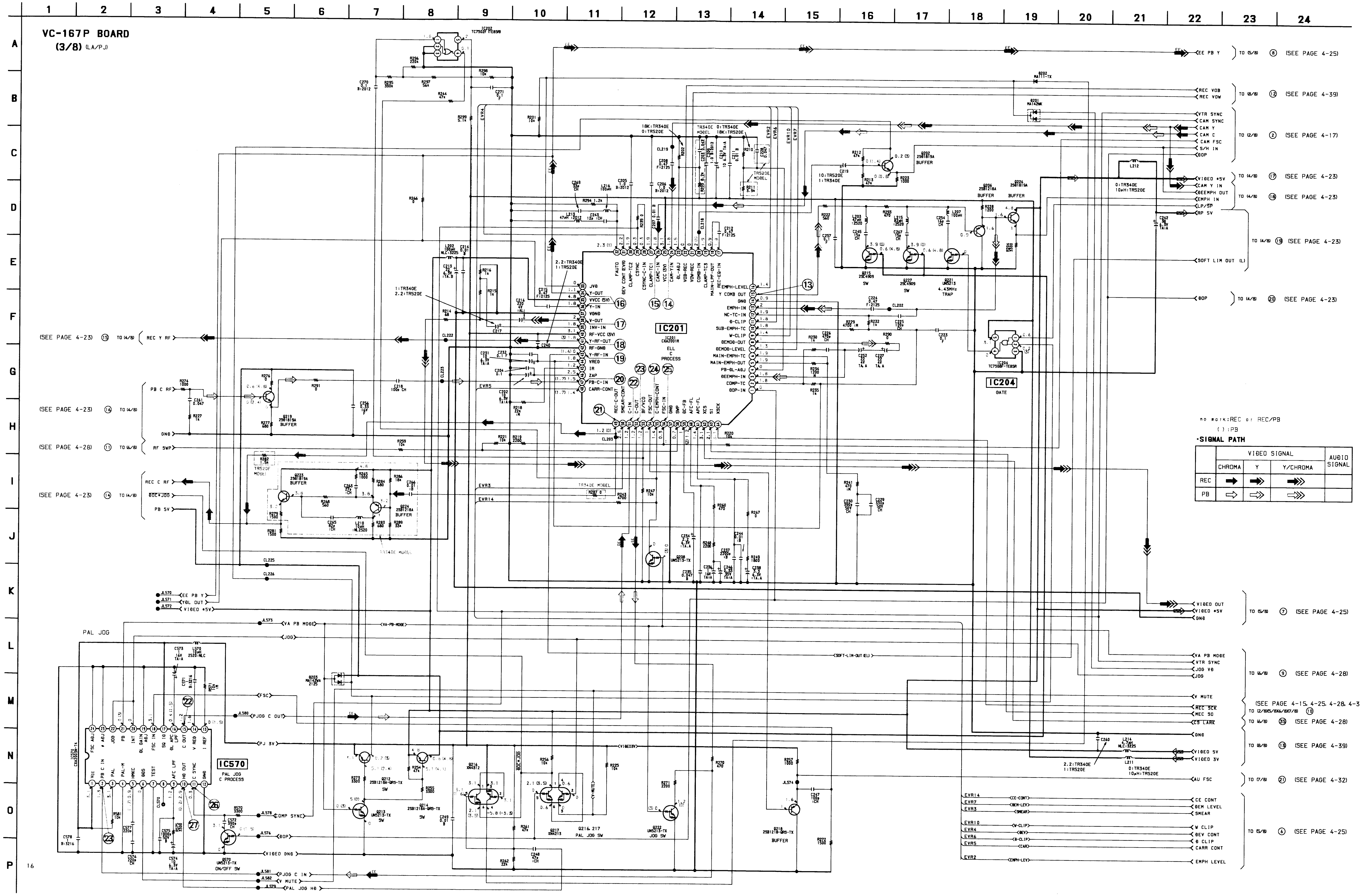
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
VC-167P BOARD
(3/8) (LA/PJ)
IC201
CXA2001R
ELL
C
PROCESS
IC570
PAL JOG
C PROCESS
(SEE PAGE 4-23) ⑮ TO (4/8) REC Y RF
(SEE PAGE 4-23) ⑯ TO (4/8) PB C RF
(SEE PAGE 4-28) ⑬ TO (4/8) RF SWP
(SEE PAGE 4-23) ⑭ TO (4/8) REC C RF
PAL JOG
EE PB Y
Y OL OUT
VIDEO +5V
VA PB MODE
JOG
FSC
PJOG C OUT
PJ 3V
COMP SYNC
BOP
VIDEO GND
PJOG C IN
V MUTE
PAL JOG HD
BUFFER
SW
PAL JOG SW
JOG SW
ON/OFF SW
16

ng board.




VC-167P BOARD
(3/8) (LA/PJ)
IC201
CXA2001R
ELL
C
PROCESS
FAUTO
DEV CONT (EVR)
CLAMP-TC2
CSYNC
CSYNC-C-IN
CLAMP-TC1
CAMC-IN
VCC (3V)
CAM-YIN
DL-ADJ
VDB-REC
VDW-REC
COMB-IN
CLAMP-TC3
MAIN-LPF-OUT
REC-EQ-IN
EMPH-LEVEL
Y COMB OUT
GND
EMPH-IN
NC-TC-IN
D-CLIP
SUB-EMPH-TC
W-CLIP
DEMOD-OUT
DEMOD-LEVEL
MAIN-EMPH-TC
MAIN-EMPH-OUT
PB-DL-ADJ
DEEMPH-IN
COMP-TC
DOP-IN
JVD
Y-OUT
VVCC (5V)
Y-IN
VGND
V-OUT
INV-IN
RF-VCC (3V)
Y-RF-OUT
RF-GND
Y-RF-IN
VREG
IR
ZAP
PB-C-IN
CARR-CONT
REC-C-OUT
SMEAR-CONT
C-IN
C-OUT
BF/VCO
FSC-OUT
C-EMPH-CONT
FSC-IN
GND
SWP
DC-FB
AFC-FL
APC-FL
XCS
SI
XSCK
IC204
GATE
IC570
PAL JOG
C PROCESS
PAL JOG
Q219 2SB1819A BUFFER
Q223 2SB1819A BUFFER
Q224 2SB1218A BUFFER
Q202 2SB1819A BUFFER
Q206 2SB1218A BUFFER
Q226 2SB1819A BUFFER
Q215 2SC4909 SW
Q227 2SC4909 SW
Q221 UN5213 4.43MHz TRAP
Q208 UN5213-TX
Q212 2SB1218A-QRS-TX SW
Q213 UN5213-TX SW
Q214 2SB1218A-QRS-TX SW
Q216 XN4512
Q217 XN4213
Q216, 217 PAL JOG SW
Q232 UN5213-TX JOG SW
Q218 2SB1218-QRS-TX BUFFER
Q570 UN5213-TX ON/OFF SW
TR340E MODEL
TR520E MODEL
EE PB Y
TO (5/8) ⑧ (SEE PAGE 4-25)
REC VDB
REC VDW
TO (8/8) ⑫ (SEE PAGE 4-39)
VTR SYNC
CAM SYNC
CAM Y
CAM C
CAM FSC
S/H IN
DOP
TO (2/8) ② (SEE PAGE 4-17)
VIDEO *5V
TO (4/8) ⑰ (SEE PAGE 4-23)
CAM Y IN
DEEMPH OUT
EMPH IN
LP/SP
TO (4/8) ⑱ (SEE PAGE 4-23)
RP 5V
TO (4/8) ⑲ (SEE PAGE 4-23)
SOFT LIM OUT (L)
DOP
TO (4/8) ⑳ (SEE PAGE 4-23)
(SEE PAGE 4-23) ⑮ TO (4/8) REC Y RF
PB C RF
(SEE PAGE 4-23) ⑭ TO (4/8)
GND
(SEE PAGE 4-28) ⑪ TO (6/8) RF SWP
REC C RF
DOC+JOG
PB 5V
(SEE PAGE 4-23) ⑭ TO (4/8)
EE PB Y
YOL OUT
VIDEO *5V
VA PB MODE
JOG
FSC
PJOG C OUT
PJ 3V
COMP SYNC
DOP
VIDEO GND
PJOG C IN
V MUTE
PAL JOG HD
SOFT-LIM-OUT (L)
VIDEO OUT
VIDEO *5V
GND
TO (5/8) ⑦ (SEE PAGE 4-25)
VA PB MODE
VTR SYNC
JOG VD
JOG
TO (6/8) ⑨ (SEE PAGE 4-28)
V MUTE
(SEE PAGE 4-15, 4-25, 4-28, 4-32)
TO (2/8)(5/8)(6/8)(7/8) ⑩
MEC SCK
MEC SO
CS LARK
TO (6/8) (35) (SEE PAGE 4-28)
GND
TO (8/8) ⑬ (SEE PAGE 4-39)
VIDEO 5V
VIDEO 3V
AU FSC
TO (7/8) ㉑ (SEE PAGE 4-32)
CE CONT
DEM LEVEL
SMEAR
W CLIP
DEV CONT
D CLIP
CARR CONT
EMPH LEVEL
TO (5/8) ⑥ (SEE PAGE 4-25)

no mark:REC or REC/PB
( ):PB

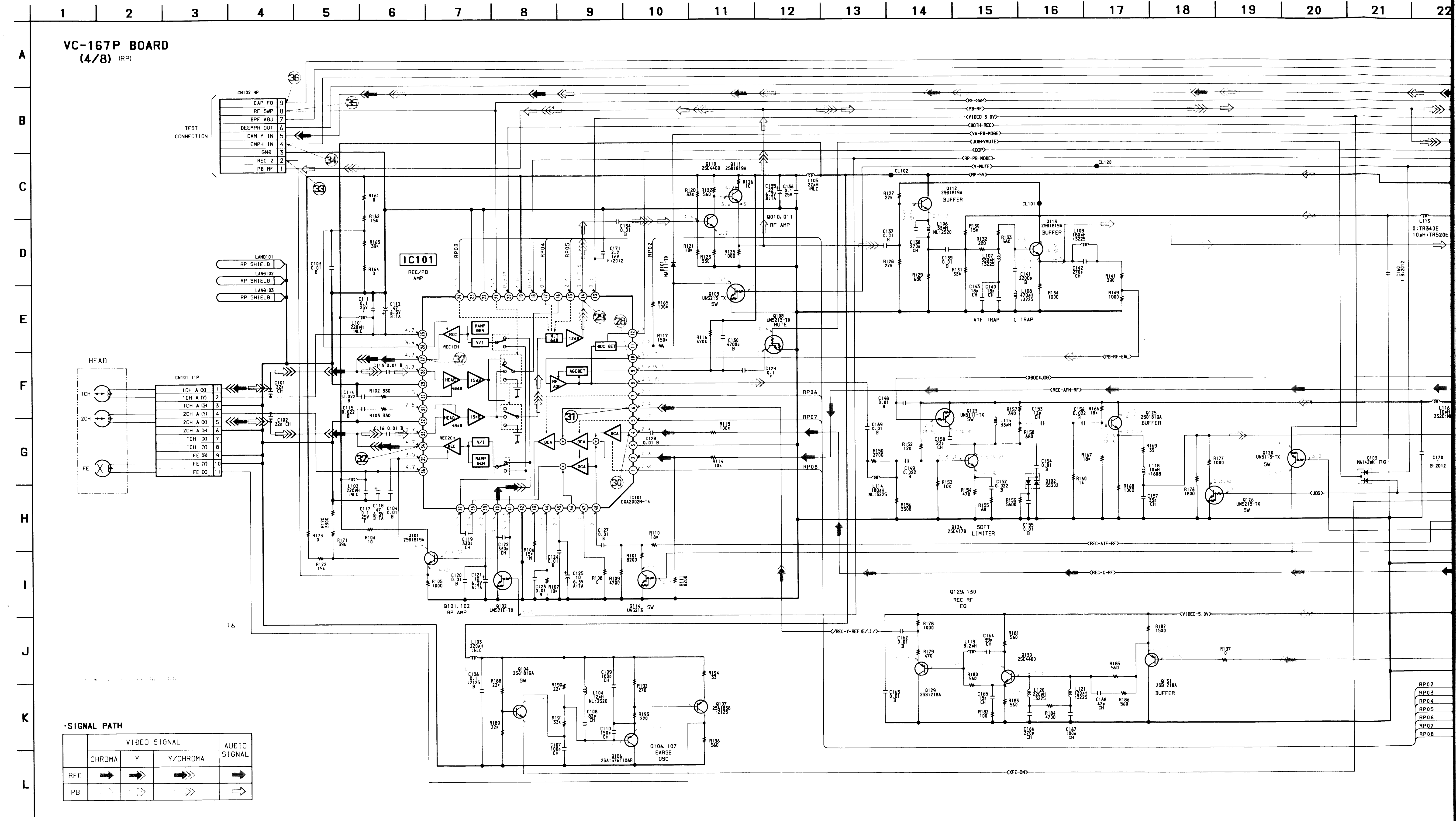
·SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡》	➡》》	
PB	⇨	⇨》	⇨》》	

VC-167P (VIDEO 1) SCHEMATIC DIAGRAM

— Ref. No. VC-167P Board; 1,000 Series —

• See page 4-7 for VC-167P BOARD printed wiring board.


VC-167P BOARD
(4/8) (RP)
CN102 9P
TEST CONNECTION
CAP FG
RF SWP
BPF ADJ
DEEMPH OUT
CAM Y IN
EMPH IN
GND
REC 2
PB RF
RP SHIELD
HEAD
1CH
2CH
FE
CN101 11P
IC101
REC/PB AMP
IC101 CXA2002R-T4
REC1CH
REC2CH
RAMP GEN
V/I
HEAD
15dB
48dB
AGC DET
RF AGC
DOC DET
DCA
Q110 2SC4400
Q111 2SB1819A
Q010, 011 RF AMP
Q109 UN5213-TX SW
Q108 UN5213-TX MUTE
Q101 2SB1819A
Q101, 102 RP AMP
Q102 UN5212-TX
Q114 UN5213 SW
Q104 2SB1819A SW
Q107 2SA1838
Q106 2SA1576T106R
Q106, 107 EARSE OSC
Q112 2SB1819A BUFFER
Q113 2SB1819A BUFFER
ATF TRAP
C TRAP
Q123 UN5111-TX SW
Q124 2SC4178
SOFT LIMITER
Q125 2SB1819A BUFFER
Q120 UN5113-TX SW
Q126 UN5213-TX SW
D103 MA142WK-(TX)
Q129, 130 REC RF EQ
Q129 2SB1218A
Q130 2SC4400
Q131 2SB1218A BUFFER
L113 D:TR540E 10µH:TR520E
<RF-SWP>
<PB-RF>
<VIDEO-3.0V>
<BOTH-REC>
<VA-PB-MODE>
<JOG+VMUTE>
<DOP>
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<Y-MUTE>
<RP-5V>
<PB-RF-EQL>
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<JOG>
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<REC-C-RF>
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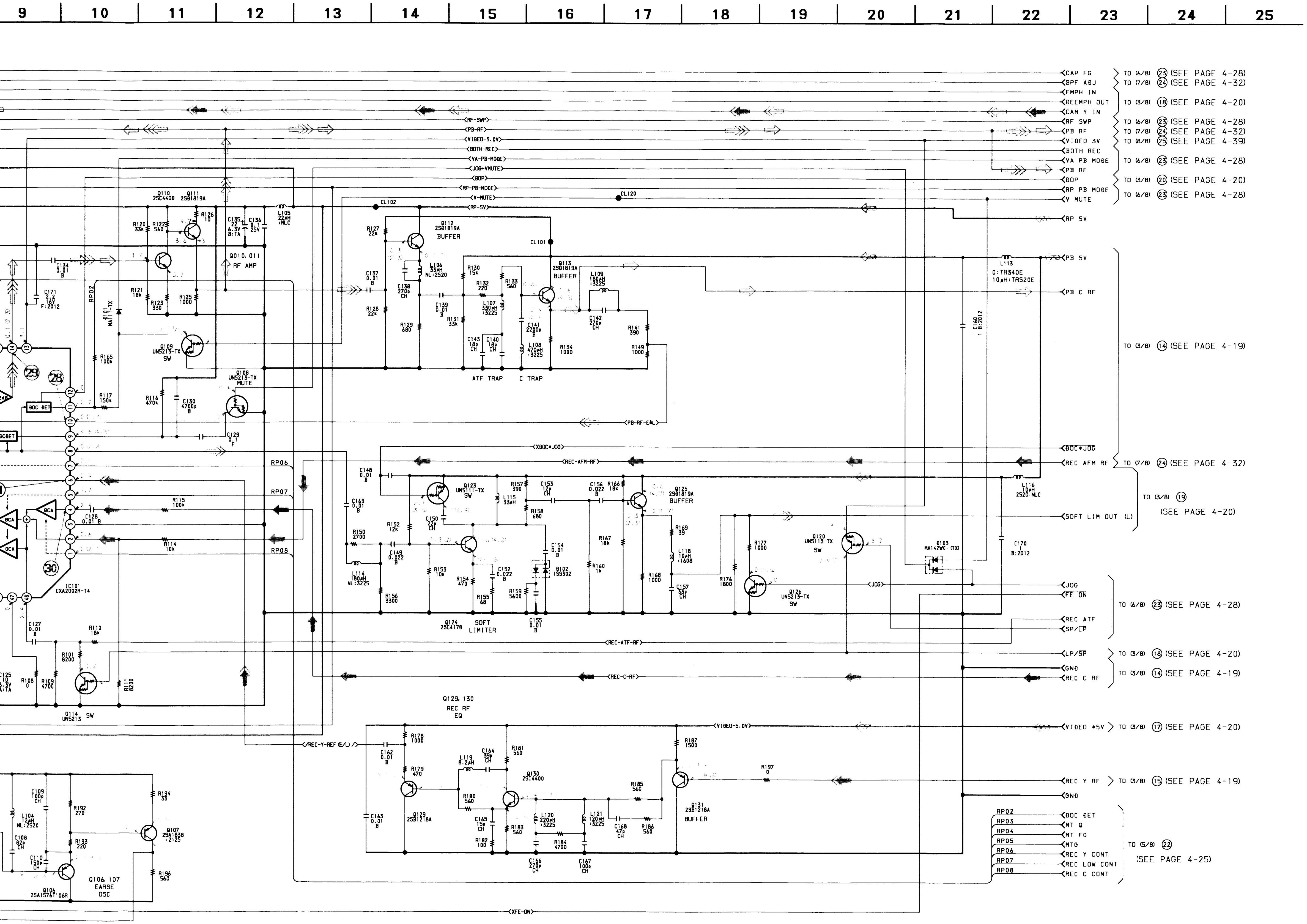
<REC-Y-REF D/L)>
<XFE-ON>
RP02
RP03
RP04
RP05
RP06
RP07
RP08

·SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»	➡
PB	⇨	⇨»	⇨»	⇨

board.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24
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CAP FG
BPF ADJ
EMPH IN
DEEMPH OUT
CAM Y IN
RF SWP
PB RF
VIDEO 3V
BOTH REC
VA PB MODE
PB RF
BOP
RP PB MODE
V MUTE
TO (6/8) ㉓ (SEE PAGE 4-28)
TO (7/8) ㉔ (SEE PAGE 4-32)
TO (3/8) ⑱ (SEE PAGE 4-20)
TO (6/8) ㉓ (SEE PAGE 4-28)
TO (7/8) ㉔ (SEE PAGE 4-32)
TO (8/8) ㉕ (SEE PAGE 4-39)
TO (6/8) ㉓ (SEE PAGE 4-28)
TO (3/8) ⑳ (SEE PAGE 4-20)
TO (6/8) ㉓ (SEE PAGE 4-28)
RP 5V
PB 5V
PB C RF
TO (3/8) ⑭ (SEE PAGE 4-19)
BOC•JOG
REC AFM RF
TO (7/8) ㉔ (SEE PAGE 4-32)
TO (3/8) ⑲ (SEE PAGE 4-20)
SOFT LIM OUT (L)
JOG
FE ON
REC ATF
SP/LP
TO (6/8) ㉓ (SEE PAGE 4-28)
LP/SP
GND
REC C RF
TO (3/8) ⑱ (SEE PAGE 4-20)
TO (3/8) ⑭ (SEE PAGE 4-19)
VIDEO •5V
TO (3/8) ⑰ (SEE PAGE 4-20)
REC Y RF
TO (3/8) ⑮ (SEE PAGE 4-19)
GND
BOC DET
MT Q
MT FO
MTG
REC Y CONT
REC LOW CONT
REC C CONT
RP02
RP03
RP04
RP05
RP06
RP07
RP08
TO (5/8) ㉒ (SEE PAGE 4-25)
Q110, Q111 2SC4400 2SB1819A
Q010, 011 RF AMP
Q112 2SB1819A BUFFER
Q113 2SB1819A BUFFER
ATF TRAP
C TRAP
Q109 UN5213-TX SW
Q108 UN5213-TX MUTE
L113 0:TR340E 10μH:TR520E
Q123 UN5111-TX SW
Q125 2SB1819A BUFFER
Q124 2SC4178 SOFT LIMITER
Q120 UN5113-TX SW
Q126 UN5213-TX SW
D103 MA142WK-(TX)
IC101 CXA2002R-T4
Q114 UN5213 SW
Q129, 130 REC RF EQ
Q129 2SB1218A
Q130 2SC4400
Q131 2SB1218A BUFFER
Q107 2SA1838 :2125
Q106, 107 EARSE OSC
Q106 2SA1576T106R
BOC DET
RP06
RP07
RP08
CL101
CL102
CL120
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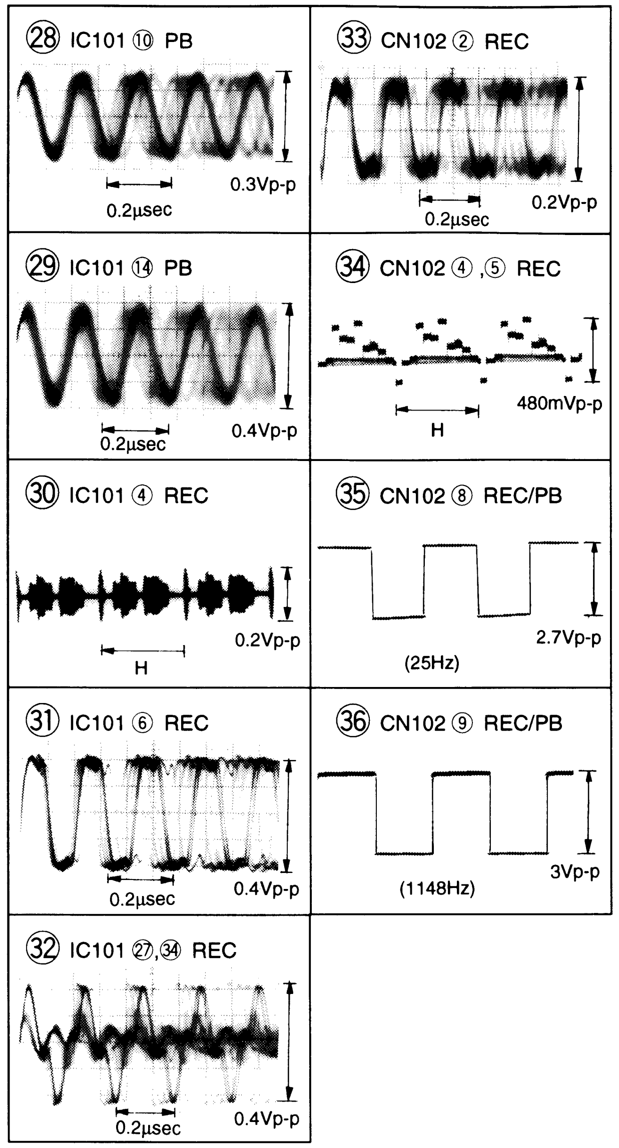
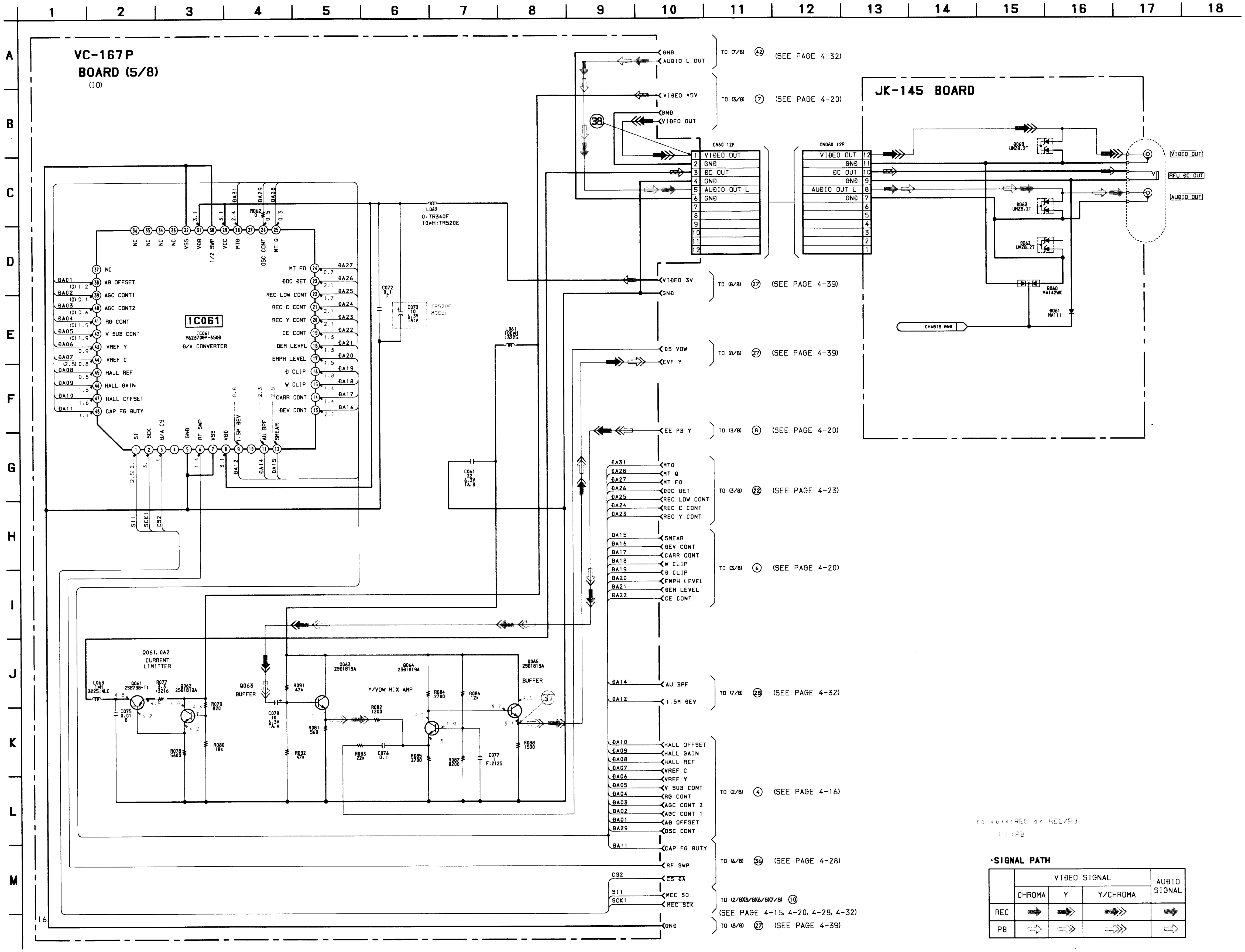
VC-167P BOARD



VC-167P (VIDEO 2) , JK-145 (JACK) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAMS • See page 4-7 for VC-167P BOARD printed wiring board.

— Ref. No. VC-167P Board; 1,000 Series, JK-145 Board; 2,000 Series —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A
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D
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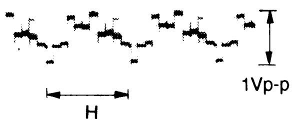
H
I
J
K
L
M
VC-167P
BOARD (5/8)
(IO)
IC061
IC061
M62370BP-6508
Đ/A CONVERTER
NC
AĐ OFFSET
AGC CONT1
AGC CONT2
RG CONT
V SUB CONT
VREF Y
VREF C
HALL REF
HALL GAIN
HALL OFFSET
CAP FG ĐUTY
MT FO
ĐOC ĐET
REC LOW CONT
REC C CONT
REC Y CONT
CE CONT
ĐEM LEVFL
EMPH LEVEL
Đ CLIP
W CLIP
CARR CONT
ĐEV CONT
VSS
VĐĐ
1/2 SWP
VCC
MTG
OSC CONT
MT Q
SI
SCK
Đ/A CS
GNĐ
RF SWP
1.5M ĐEV
AU BPF
SMEAR
R062 0
C072 0.1 F
C073 10 6.3V TA:A
TR520E MODEL
L062 0:TR340E 10μH:TR520E
L061 100μH :3225
C061 22 6.3V TA.B
SI1
SCK1
CS2
Q061, 062
CURRENT LIMITTER
L063 1μH 3225:NLC
Q061 2SB798-T1
R077 3.3 :3216
Q062 2SD1819A
C075 0.01 B
R078 5600
R079 820
R080 18k
Q063 BUFFER
C078 10 6.3V TA A
R091 47k
R092 47k
R081 560
Q063 2SD1819A
Q064 2SD1819A
Y/VOW MIX AMP
R082 1200
R083 22k
C076 0.1
R084 2700
R085 2700
R086 12k
R087 8200
C077 1 F:2125
Q065 2SD1819A
BUFFER
R088 1500
37
38
GNĐ
AUĐIO L OUT
TO (7/8) 42 (SEE PAGE 4-32)
VIĐEO *5V
GNĐ
VIĐEO OUT
TO (3/8) 7 (SEE PAGE 4-20)
CN60 12P
1 VIĐEO OUT
2 GNĐ
3 ĐC OUT
4 GNĐ
5 AUĐIO OUT L
6 GNĐ
CN060 12P
VIĐEO OUT 12
GNĐ 11
ĐC OUT 10
GNĐ 9
AUĐIO OUT L 8
GNĐ 7
JK-145 BOARD
Đ069 UMZ8.2T
Đ063 UMZ8.2T
Đ062 UMZ8.2T
Đ060 MA142WK
Đ061 MA111
CHASIS GNĐ
VIĐEO OUT
RFU ĐC OUT
AUĐIO OUT
VIĐEO 3V
GNĐ
TO (8/8) 27 (SEE PAGE 4-39)
ĐS VOW
EVF Y
TO (8/8) 27 (SEE PAGE 4-39)
EE PB Y
TO (3/8) 8 (SEE PAGE 4-20)
ĐA31 MTG
ĐA28 MT Q
ĐA27 MT FO
ĐA26 ĐOC ĐET
ĐA25 REC LOW CONT
ĐA24 REC C CONT
ĐA23 REC Y CONT
TO (3/8) 22 (SEE PAGE 4-23)
ĐA15 SMEAR
ĐA16 ĐEV CONT
ĐA17 CARR CONT
ĐA18 W CLIP
ĐA19 Đ CLIP
ĐA20 EMPH LEVEL
ĐA21 ĐEM LEVEL
ĐA22 CE CONT
TO (3/8) 6 (SEE PAGE 4-20)
ĐA14 AU BPF
ĐA12 1.5M ĐEV
TO (7/8) 28 (SEE PAGE 4-32)
ĐA10 HALL OFFSET
ĐA09 HALL GAIN
ĐA08 HALL REF
ĐA07 VREF C
ĐA06 VREF Y
ĐA05 V SUB CONT
ĐA04 RG CONT
ĐA03 AGC CONT 2
ĐA02 AGC CONT 1
ĐA01 AĐ OFFSET
ĐA29 OSC CONT
TO (2/8) 4 (SEE PAGE 4-16)
ĐA11 CAP FG ĐUTY
RF SWP
TO (6/8) 36 (SEE PAGE 4-28)
CS2 CS ĐA
SI1 MEC SO
SCK1 MEC SCK
TO (2/8)(3/8)(6/8)(7/8) 10
(SEE PAGE 4-15, 4-20, 4-28, 4-32)
GNĐ
TO (8/8) 27 (SEE PAGE 4-39)
16
no mark:REC or REC/PB
( ):PB

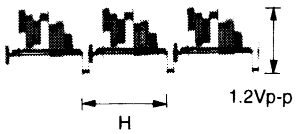
·SIGNAL PATH

	VIĐEO SIGNAL			AUĐIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

VC-167P BOARD



㊲ Q065 Ⓔ REC/PB



㊳ CN060 ① REC/PB

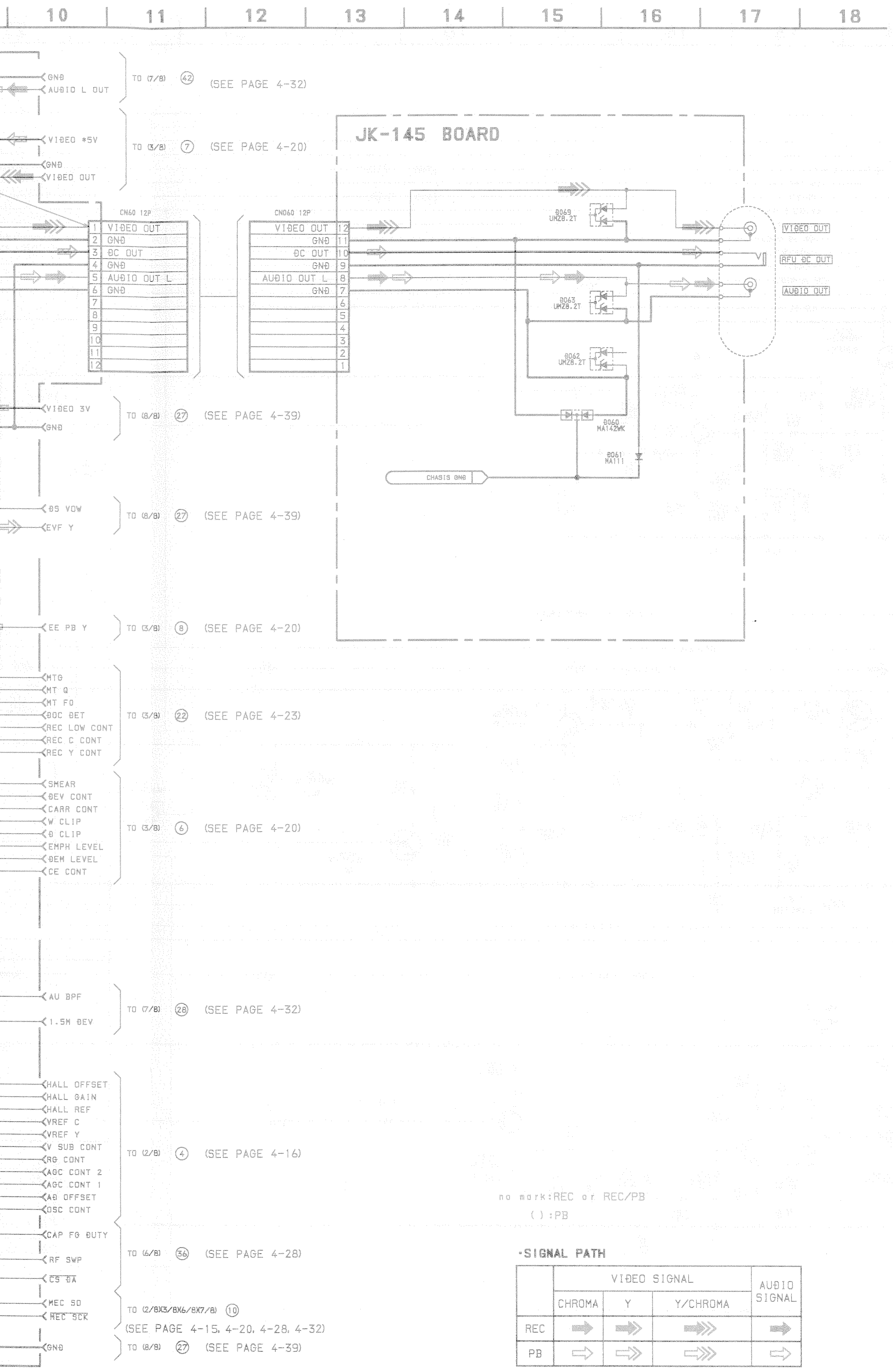
There a

JK-145 E

JK-145

16

4-7 for VC-167P BOARD printed wiring board.

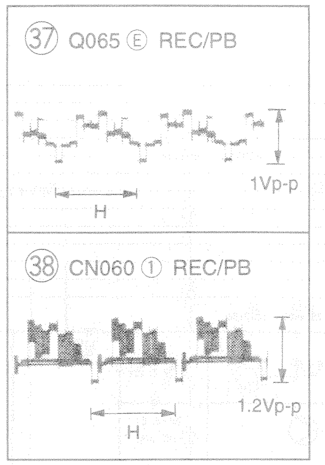

10
11
12
13
14
15
16
17
18
GND
AUDIO L OUT
TO (7/8) ㊷ (SEE PAGE 4-32)
VIDEO *5V
GND
VIDEO OUT
TO (3/8) ⑦ (SEE PAGE 4-20)
CN60 12P
1 VIDEO OUT
2 GND
3 DC OUT
4 GND
5 AUDIO OUT L
6 GND
7
8
9
10
11
12
CN060 12P
VIDEO OUT 12
GND 11
DC OUT 10
GND 9
AUDIO OUT L 8
GND 7
6
5
4
3
2
1
JK-145 BOARD
D069 UMZ8.2T
D063 UMZ8.2T
D062 UMZ8.2T
D060 MA142WK
D061 MA111
CHASIS GND
VIDEO OUT
RFU DC OUT
AUDIO OUT
VIDEO 3V
GND
TO (8/8) ㉗ (SEE PAGE 4-39)
DS VDW
EVF Y
TO (8/8) ㉗ (SEE PAGE 4-39)
EE PB Y
TO (3/8) ⑧ (SEE PAGE 4-20)
MTG
MT Q
MT FG
DOC DET
REC LOW CONT
REC C CONT
REC Y CONT
TO (3/8) ㉒ (SEE PAGE 4-23)
SMEAR
DEV CONT
CARR CONT
W CLIP
D CLIP
EMPH LEVEL
DEM LEVEL
CE CONT
TO (3/8) ⑥ (SEE PAGE 4-20)
AU BPF
1.5M DEV
TO (7/8) ㉘ (SEE PAGE 4-32)
HALL OFFSET
HALL GAIN
HALL REF
VREF C
VREF Y
V SUB CONT
RG CONT
AGC CONT 2
AGC CONT 1
AD OFFSET
OSC CONT
TO (2/8) ④ (SEE PAGE 4-16)
CAP FG DUTY
RF SWP
CS DA
TO (6/8) ㊱ (SEE PAGE 4-28)
MEC SD
MEC SCK
TO (2/8)(3/8)(6/8)(7/8) ⑩
(SEE PAGE 4-15, 4-20, 4-28, 4-32)
GND
TO (8/8) ㉗ (SEE PAGE 4-39)

no mark:REC or REC/PB
( ) :PB

·SIGNAL PATH

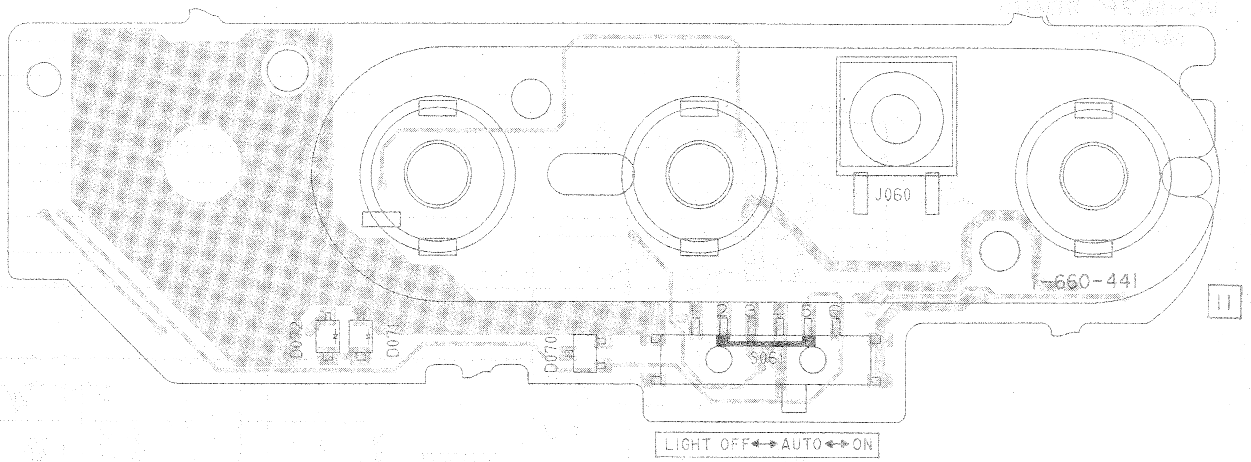
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫	➡⋙	➡
PB	⇨	⇨≫	⇨⋙	⇨

VC-167P BOARD

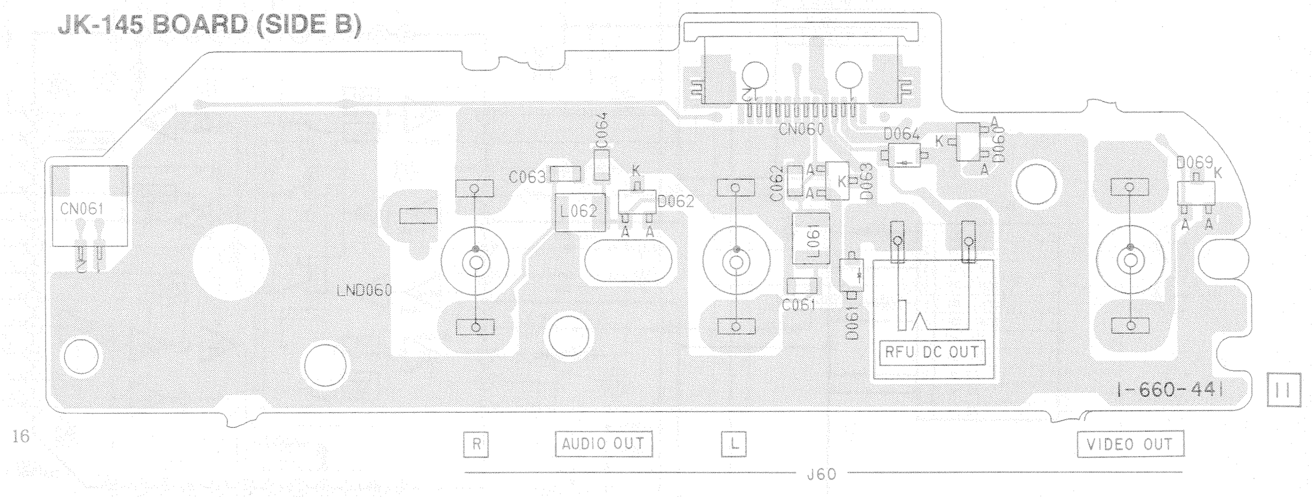


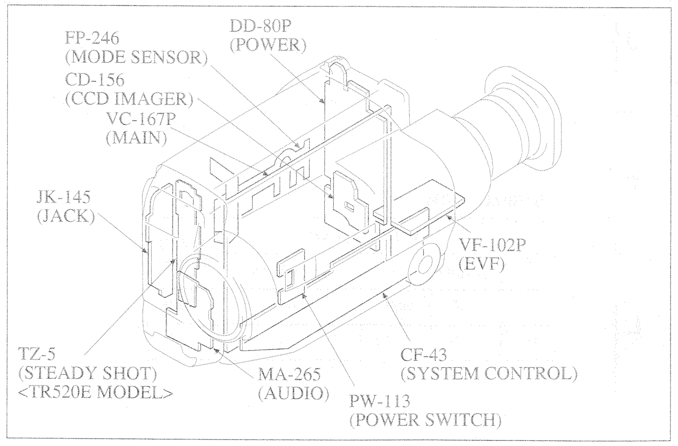
There are few cases that the part printed on this diagram isn't mounted in this model.

JK-145 BOARD (SIDE A)


J060
1-660-441
11
D072
D071
D070
1 2 3 4 5
S061
LIGHT OFF↔AUTO↔ON

JK-145 BOARD (SIDE B)

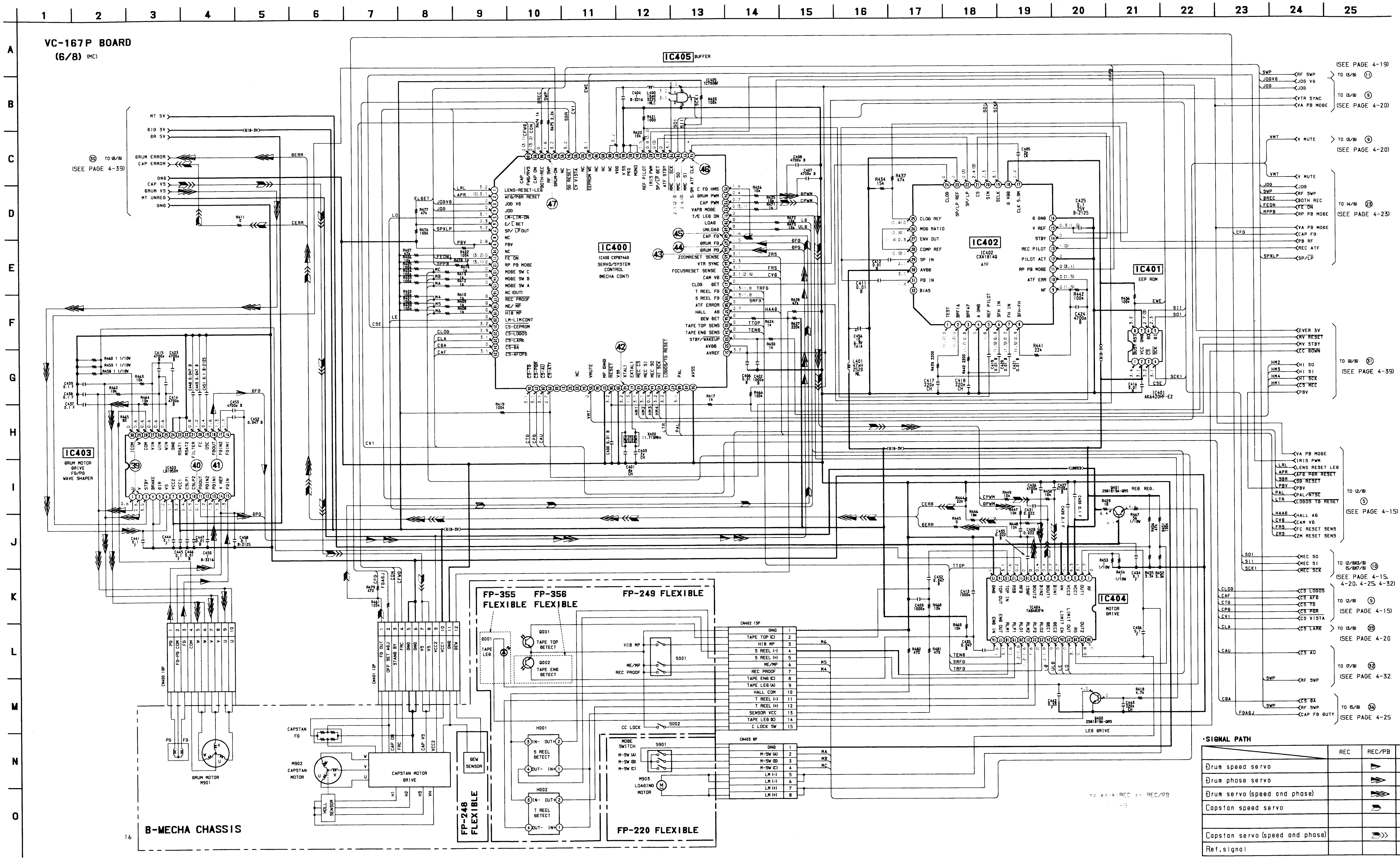

CN060
C064
D064
D065
D069
C063
L062
D062
C062
D063
CN061
L061
LND060
C061
D061
RFU DC OUT
1-660-441
11
16
R
AUDIO OUT
L
VIDEO OUT
J60


FP-246
(MODE SENSOR)
DD-80P
(POWER)
CD-156
(CCD IMAGER)
VC-167P
(MAIN)
JK-145
(JACK)
VF-102P
(EVF)
TZ-5
(STEADY SHOT)
<TR520E MODEL>
MA-265
(AUDIO)
PW-113
(POWER SWITCH)
CF-43
(SYSTEM CONTROL)

VC-167P (MODE CONTROL), FP-249 (MODE SENSOR) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAMS

— Ref. No. VC-167P Board; 1,000 Series, FP-249 Board; 5,000 Series —

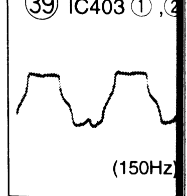
- See page 4-7 for VC-167P BOARD printed wiring board.

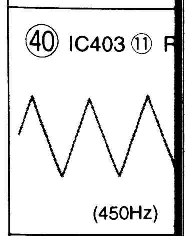

VC-167P BOARD
(6/8) (MC)
IC405 BUFFER
IC405 TC7S08F
IC400
IC400 CXP87460
SERVO/SYSTEM CONTROL
(MECHA CONT)
IC402
IC402 CXA1814Q
ATF
IC401
EEP ROM
IC401 AK6420MF-E2
IC403
DRUM MOTOR DRIVE
FG/PG WAVE SHAPER
IC403 LB1950V
IC404
MOTOR DRIVE
IC404 TA8482FN
X400 11.718MHz
MT 5V
DIO 3V
DR 5V
DRUM ERROR
CAP ERROR
GND
CAP VS
DRUM VS
MT UNREG
(33) TO (8/8) (SEE PAGE 4-39)
(SEE PAGE 4-19) TO (3/8) (1)
TO (3/8) (9) (SEE PAGE 4-20)
TO (3/8) (9) (SEE PAGE 4-20)
TO (4/8) (23) (SEE PAGE 4-23)
TO (8/8) (31) (SEE PAGE 4-39)
TO (2/8) (5) (SEE PAGE 4-15)
TO (2/8XS/8) (5/8X7/8) (19) (SEE PAGE 4-15, 4-20, 4-25, 4-32)
TO (2/8) (5) (SEE PAGE 4-15)
TO (3/8) (35) (SEE PAGE 4-20)
TO (7/8) (32) (SEE PAGE 4-32)
TO (5/8) (36) (SEE PAGE 4-25)
REC REG.
LED DRIVE
FP-355 FLEXIBLE
FP-356 FLEXIBLE
FP-249 FLEXIBLE
D001 TAPE LED
Q001 TAPE TOP DETECT
Q002 TAPE END DETECT
HI8 MP
ME/MP
REC PROOF
S001
CC LOCK S002
H001 S REEL DETECT
H002 T REEL DETECT
MODE SWITCH S901
M903 LOADING MOTOR
FP-220 FLEXIBLE
CN402 15P
CN403 8P
CN401 12P
CN400 10P
DRUM MOTOR M901
CAPSTAN FG
M902 CAPSTAN MOTOR
CAPSTAN MOTOR DRIVE
HALL SENSOR
DEW SENSOR
FP-248 FLEXIBLE
B-MECHA CHASSIS

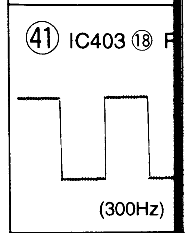
·SIGNAL PATH

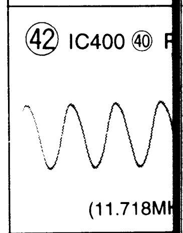
	REC	REC/PB	PB
Drum speed servo		▶	
Drum phase servo		▶>	
Drum servo (speed and phase)		▶>>	
Capstan speed servo		▶	
Capstan servo (speed and phase)		▶>>	
Ref.signal			

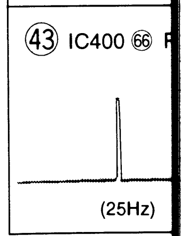
VC-167P BO



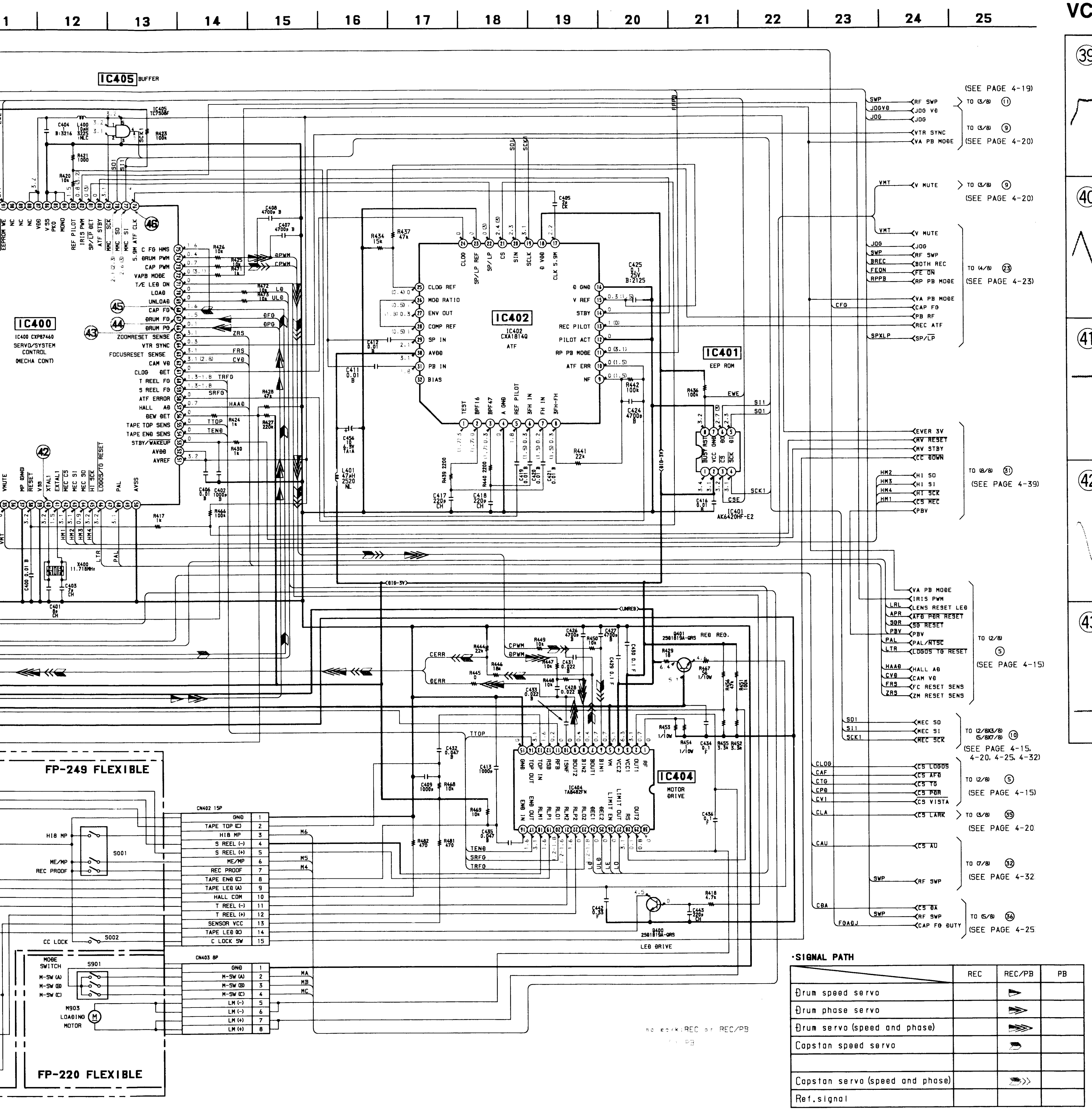






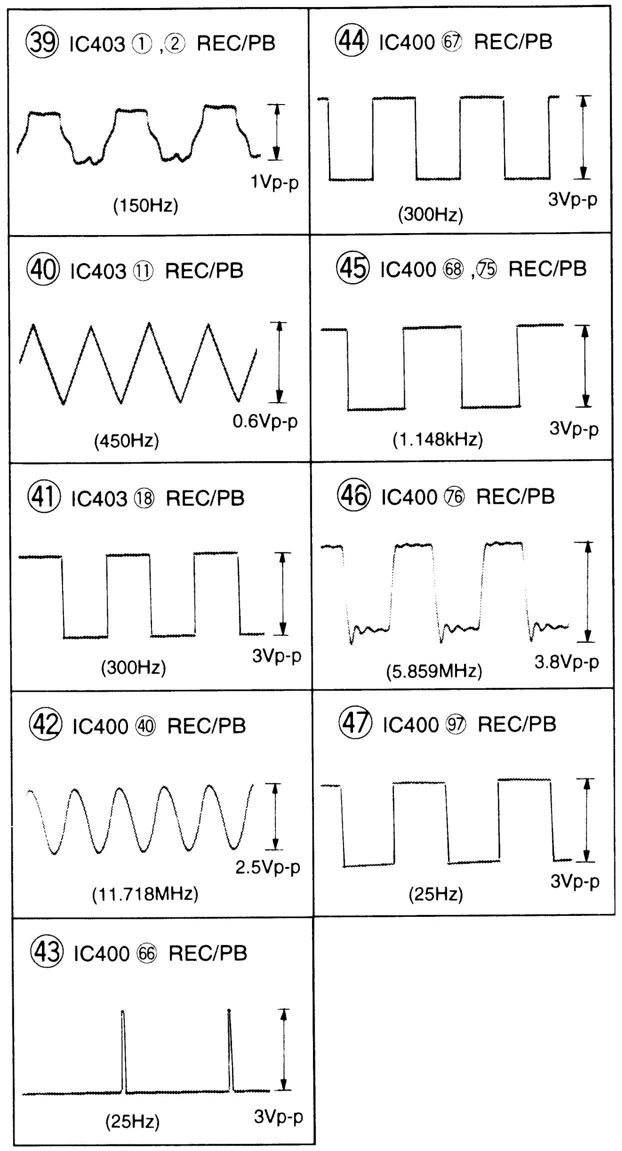


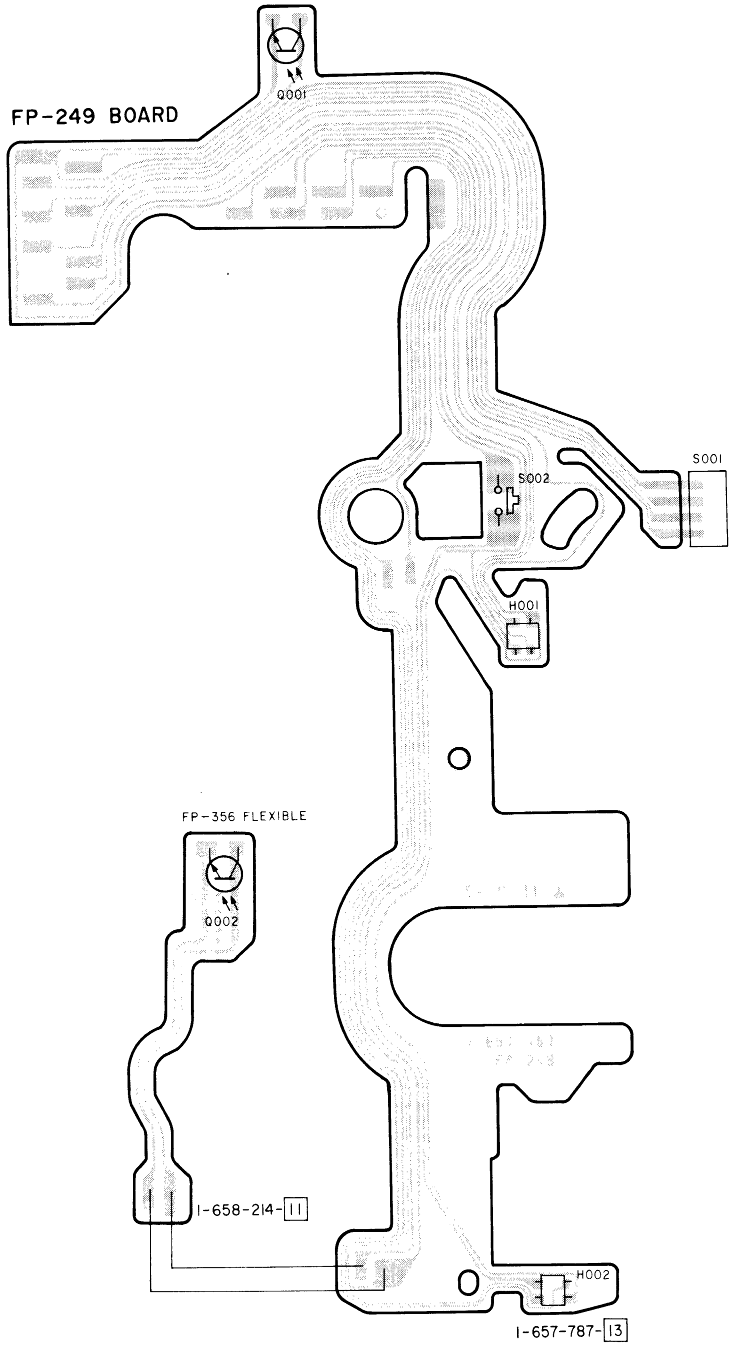
• See page 4-7 for VC-167P BOARD printed wiring board.

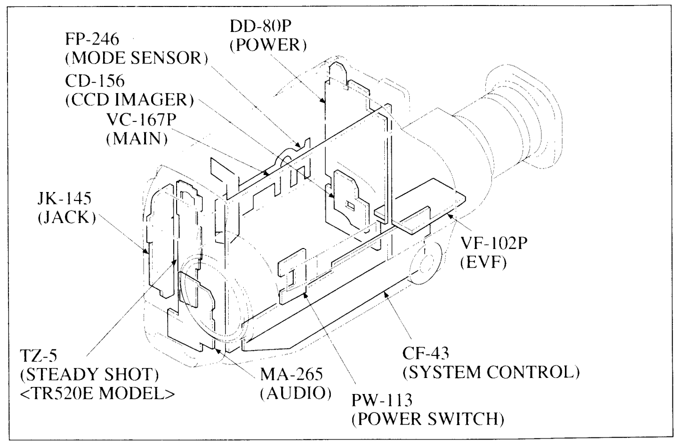

12
13
14
15
16
17
18
19
20
21
22
23
24
25
IC405 BUFFER
IC400
IC400 CXP87460 SERVO/SYSTEM CONTROL (MECHA CONT)
IC402
IC402 CXA1814Q ATF
IC401
EEP ROM
IC401 AK6420HF-E2
IC404
MOTOR DRIVE
IC404 TA8482FN
LED DRIVE
(SEE PAGE 4-19)
(SEE PAGE 4-20)
(SEE PAGE 4-23)
(SEE PAGE 4-39)
(SEE PAGE 4-15)
(SEE PAGE 4-15, 4-20, 4-25, 4-32)
(SEE PAGE 4-32)
(SEE PAGE 4-25)
FP-249 FLEXIBLE
FP-220 FLEXIBLE
CN402 15P
CN403 8P
S001
S002
S901
M903 LOADING MOTOR
MODE SWITCH
CC LOCK
HI8 MP
ME/MP
REC PROOF
·SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		⋙	
Drum servo (speed and phase)		⋙	
Capstan speed servo		➢	
Capstan servo (speed and phase)		➢»	
Ref.signal			

VC-167P BOARD



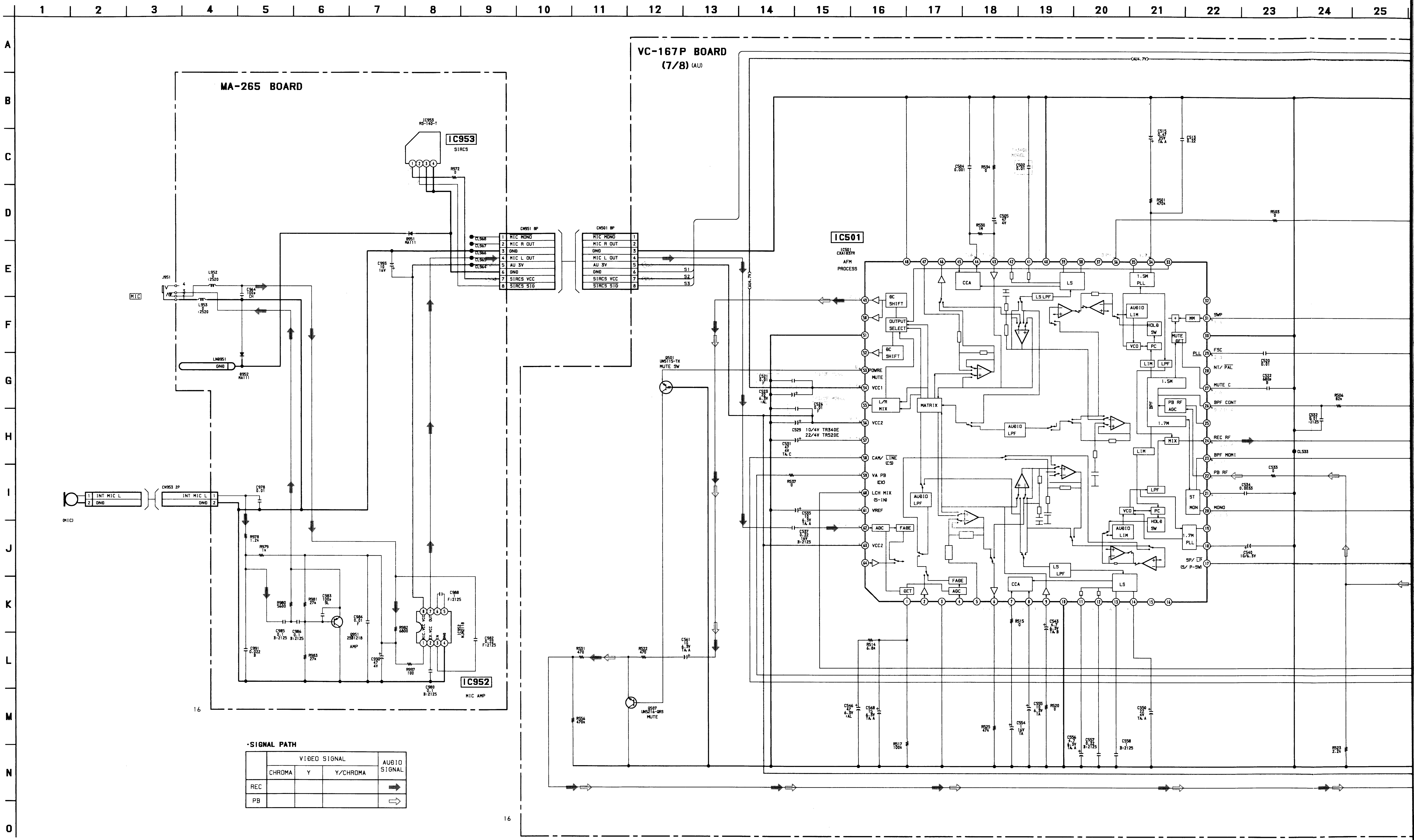

FP-249 BOARD
Q001
S002
S001
H001
FP-356 FLEXIBLE
Q002
1-658-214-11
H002
1-657-787-13


DD-80P
(POWER)
FP-246
(MODE SENSOR)
CD-156
(CCD IMAGER)
VC-167P
(MAIN)
JK-145
(JACK)
VF-102P
(EVF)
TZ-5
(STEADY SHOT)
<TR520E MODEL>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

VC-167P (AUDIO AMP), MA-265 (AUDIO) SCHEMATIC DIAGRAMS

• See page 4-7 for VC-167P BOARD printed wiring board.

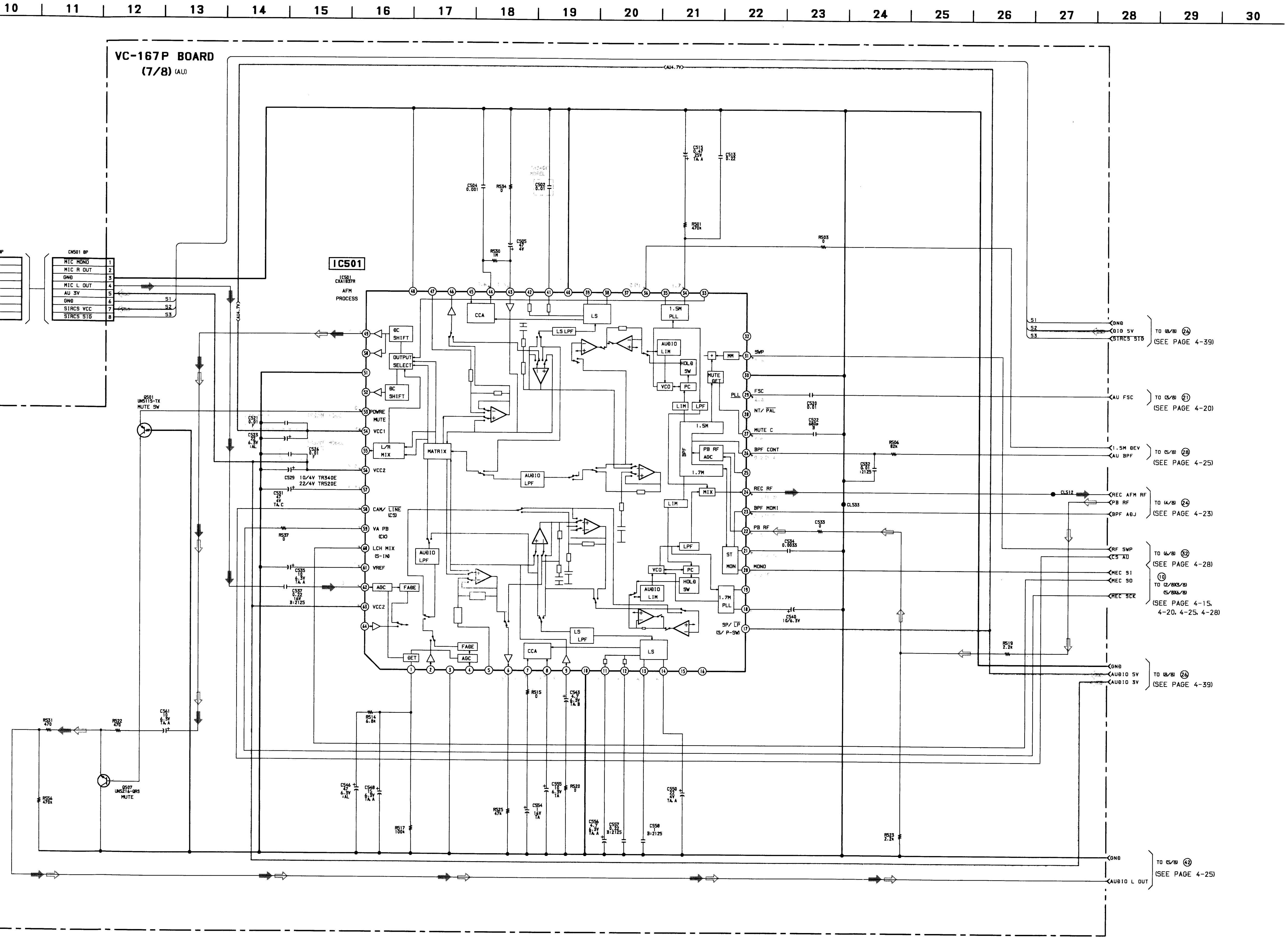
— Ref. No. VC-167P Board; 1,000 Series, MA-265 Board; 2,000 Series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
MA-265 BOARD
VC-167P BOARD
(7/8) (AU)
IC953
SIRCS
IC952
MIC AMP
IC501
AFM PROCESS
CN951 8P
CN501 8P
MIC MONO
MIC R OUT
GND
MIC L OUT
AU 3V
SIRCS VCC
SIRCS SIG
MIC
INT MIC L
CN953 2P
(MIC)
Q501
MUTE SW
Q507
MUTE
Q951
AMP
S1
S2
S3
BC SHIFT
OUTPUT SELECT
L/R MIX
MATRIX
AUDIO LPF
ADC
FADE
AGC
GET
CCA
LS
LS LPF
1.5M PLL
AUDIO LIM
HOLD SW
VCO
PC
LIM
LPF
MIX
PB RF AGC
1.7M
1.7M PLL
ST MON
MM
MUTE DET
POWER MUTE
VCC1
VCC2
CAM/LINE
VA PB
LCH MIX
VREF
SWP
FSC
NT/PAL
MUTE C
BPF CONT
REC RF
BPF MONI
PB RF
MONO
SP/LP
16

-SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨

VC-167P BOARD printed wiring board.


10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
VC-167P BOARD
(7/8) (AU)
CN501 8P
MIC MONO 1
MIC R OUT 2
GND 3
MIC L OUT 4
AU 3V 5
GND 6
SIRCS VCC 7
SIRCS SIG 8
S1
S2
S3
(AU4.7V)
IC501
IC501
CXA1837R
AFM
PROCESS
DC SHIFT
OUTPUT SELECT
DC SHIFT
L/R MIX
MATRIX
CCA
LS
LS LPF
1.5M PLL
AUDIO LIM
HOLD SW
VCO
PC
LIM
LPF
1.5M
BPF
PB RF AGC
1.7M
MIX
MUTE DET
MM
AUDIO LPF
AUDIO LPF
AGC
FADE
DET
FADE
AGC
CCA
LS LPF
LS
ST MON
1.7M PLL
POWRE MUTE
VCC1
VCC2
CAM/ LINE (CS)
VA PB (CK)
LCH MIX (S-IN)
VREF
VCC2
SWP
PLL
FSC
NT/ PAL
MUTE C
BPF CONT
REC RF
BPF MONI
PB RF
MONO
SP/ LP (S/ P-SW)
Q501
UN5115-TX
MUTE SW
Q507
UN5216-QR5
MUTE
C521 0.01 F
C523 22 6.3V :AL
C526 0.01 F
C529 10/4V TR340E 22/4V TR520E
C531 47 4V TA C
R537 0
C535 10 6.3V TA A
C537 0.22 16V B:2125
C504 0.001
R534 0
C502 0.01
C515 0.47 25V TA A
C513 0.22
R501 470k
R530 1M
C505 47 4V
R503
R504 82k
C532 0.01 :2125
C520 0.01
C522 680p B
C533 0
C534 0.0033
C540 10/6.3V
CL512
CL533
R519 2.2k
R515 0
C543 4.7 6.3V TA B
R514 6.8k
R531 470
R522 470
C561 10 6.3V TA A
R556 470k
C546 47 6.3V :AL
C548 10 6.3V TA A
R517 100k
R525 47k
C555 10 6.3V TA
R520 0
C554 1 16V TA
C556 4.7 6.3V TA A
C557 0.22 B:2125
C558 B:2125
C550 22 4V TA A
R523 2.2k
GND
DIG 5V
SIRCS SIG
TO (8/8) ㉖
(SEE PAGE 4-39)
AU FSC
TO (3/8) ㉑
(SEE PAGE 4-20)
1.5M DEV
AU BPF
TO (5/8) ㉘
(SEE PAGE 4-25)
REC AFM RF
PB RF
BPF ADJ
TO (4/8) ㉔
(SEE PAGE 4-23)
RF SWP
CS AU
TO (6/8) ㉜
(SEE PAGE 4-28)
MEC SI
MEC SO
MEC SCK
⑩
TO (2/8)(3/8) (5/8)(6/8)
(SEE PAGE 4-15, 4-20, 4-25, 4-28)
GND
AUDIO 5V
AUDIO 3V
TO (8/8) ㉖
(SEE PAGE 4-39)
GND
AUDIO L OUT
TO (5/8) ㊷
(SEE PAGE 4-25)

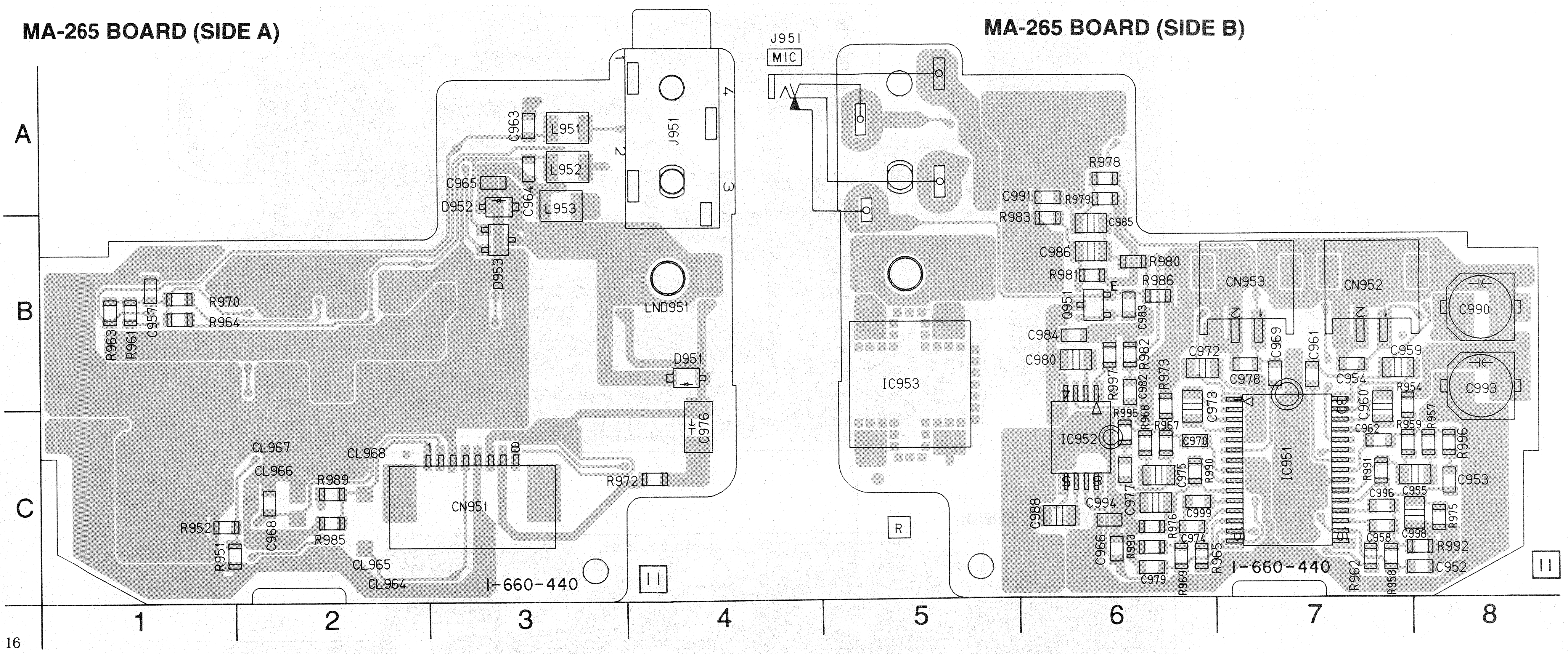
MA-265 (AUDIO) PRINTED WIRING BOARD

— Ref. No. MA-265 Board; 2,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.

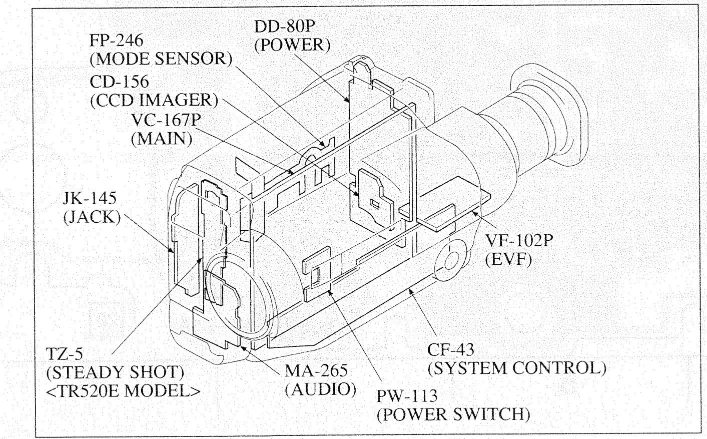
MA-265 BOARD (SIDE A)

MA-265 BOARD (SIDE B)


A
B
C
1
2
3
4
5
6
7
8
16
J951
MIC
L951
L952
L953
C963
C965
C964
D952
D953
R970
R964
R963
R961
C957
LND951
D951
C976
CL967
CL966
CL968
R989
R985
R952
R951
C968
CN951
CL965
CL964
R972
1-660-440
R978
C991
R979
R983
C985
C986
R980
R981
R986
Q951
C983
C984
C980
R997
R982
R973
R968
R995
R967
IC953
IC952
C970
C975
R990
C973
C972
C978
C969
C961
CN953
CN952
C990
C959
C954
C993
R954
C960
C962
R959
R957
R996
IC951
R991
C996
C955
C953
C988
C994
C977
C999
R976
C974
C966
R993
R965
R969
C979
C958
C998
R975
R992
C952
R962
R958
R

MA-265 BOARD

C954	B–7	IC952	C–6
C978	B–7	IC953	B–5
C980	B–6		
C982	B–6	J951	A–4
C983	B–6		
C984	B–6	L952	A–3
C985	B–6	L953	A–3
C986	B–6		
C988	C–6	Q951	B–6
C990	B–8		
C991	A–6	R972	C–4
C993	C–8	R978	A–6
		R979	A–6
CN951	C–3	R980	B–6
CN953	B–7	R981	B–6
		R982	B–6
D951	B–4	R983	A–6
D952	A–3	R997	B–6

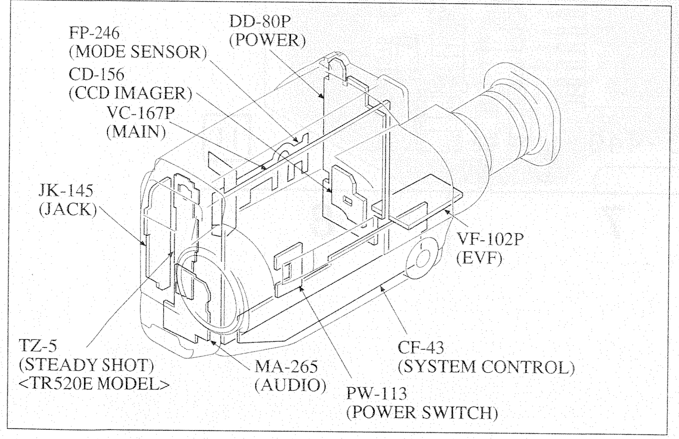

FP-246
(MODE SENSOR)
DD-80P
(POWER)
CD-156
(CCD IMAGER)
VC-167P
(MAIN)
JK-145
(JACK)
VF-102P
(EVF)
TZ-5
(STEADY SHOT)
<TR520E MODEL>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

DD-80P (POWER) PRINTED WIRING BOARD

— Ref. No. DD-80P Board; 1,000 Series —

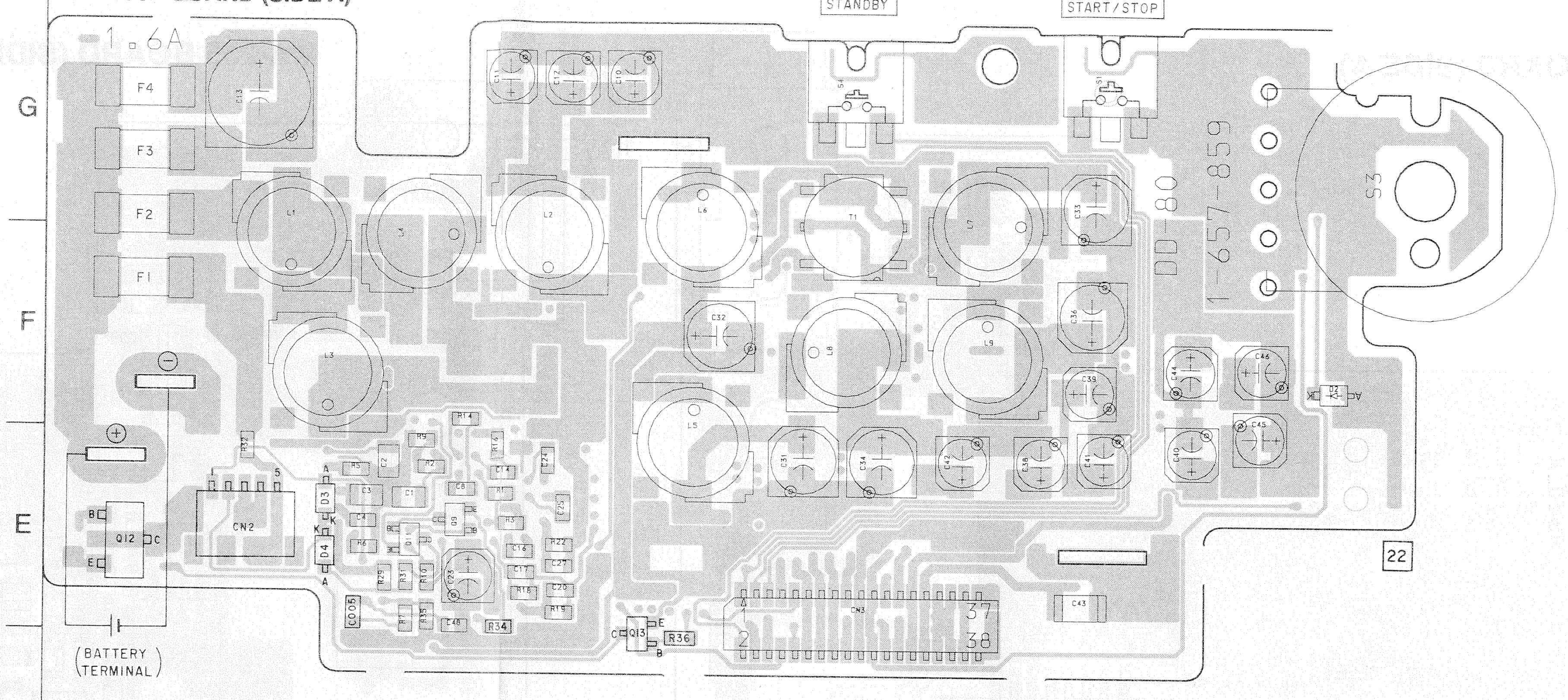
DD-80P BOARD

C001	E–2	C037	B–4	L011	C–5	R009	E–2
C002	E–2	C038	E–5	L012	C–6	R010	E–2
C003	E–2	C039	F–6	L013	C–6	R014	F–3
C004	E–2	C040	E–6	L014	C–4	R015	D–3
C005	E–2	C041	E–6	L015	B–4	R016	E–3
C006	B–2	C042	E–5	L016	C–5	R017	B–3
C007	C–2	C043	E–6	L017	B–6	R018	E–3
C008	E–3	C044	F–6	L018	B–6	R019	E–3
C009	C–3	C045	F–6			R020	B–3
C010	G–3	C046	F–6	PS002	G–1	R021	B–3
C011	G–3	C047	B–3	PS003	G–1	R022	E–3
C012	G–3	C048	E–3	PS004	G–1	R023	C–7
C013	G–1					R024	C–4
C014	E–3	CN003	E–5	Q001	B–5	R025	C–4
C016	E–3			Q002	A–5	R026	C–4
C018	B–3	D001	B–4	Q003	A–4	R027	A–6
C019	C–3			Q004	B–4	R033	B–7
C022	B–3	IC001	C–3	Q005	B–4		
C024	E–3			Q006	B–4	S001	G–6
C025	E–3	J001	B–1	Q007	B–5	S002	C–7
C026	B–3			Q008	C–4	S003	B–7
C027	E–3	L002	G–3			S004	G–4
C028	B–4	L003	F–2	R001	E–3		
C029	B–5	L004	F–2	R002	E–2	T001	G–4
C030	A–4	L005	F–4	R003	E–3		
C031	E–4	L006	G–4	R004	B–2		
C032	F–4	L007	G–5	R005	E–2		
C033	G–6	L008	F–4	R006	E–2		
C034	E–5	L009	F–5	R007	E–2		
C036	F–6	L010	C–5	R008	C–2		

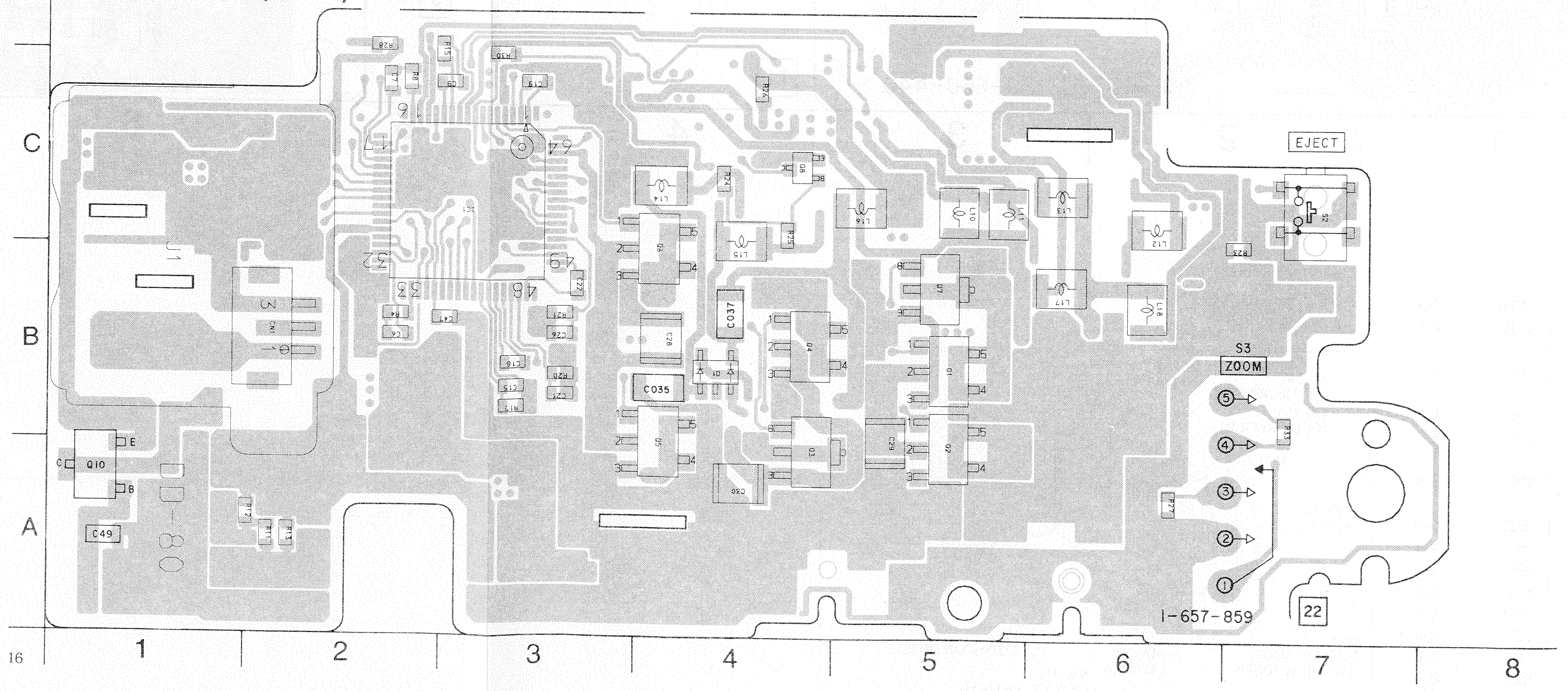

FP-246
(MODE SENSOR)
DD-80P
(POWER)
CD-156
(CCD IMAGER)
VC-167P
(MAIN)
JK-145
(JACK)
VF-102P
(EVF)
TZ-5
(STEADY SHOT)
<TR520E MODEL>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

There are few cases that the part printed on this diagram isn't mounted in this model.

DD-80P BOARD (SIDE A)


STANDBY
START/STOP
1.6A
F4
F3
F2
F1
DD-80
1-657-859
S3
CN2
Q12
Q13
R36
R34
BATTERY TERMINAL
22
G
F
E
D

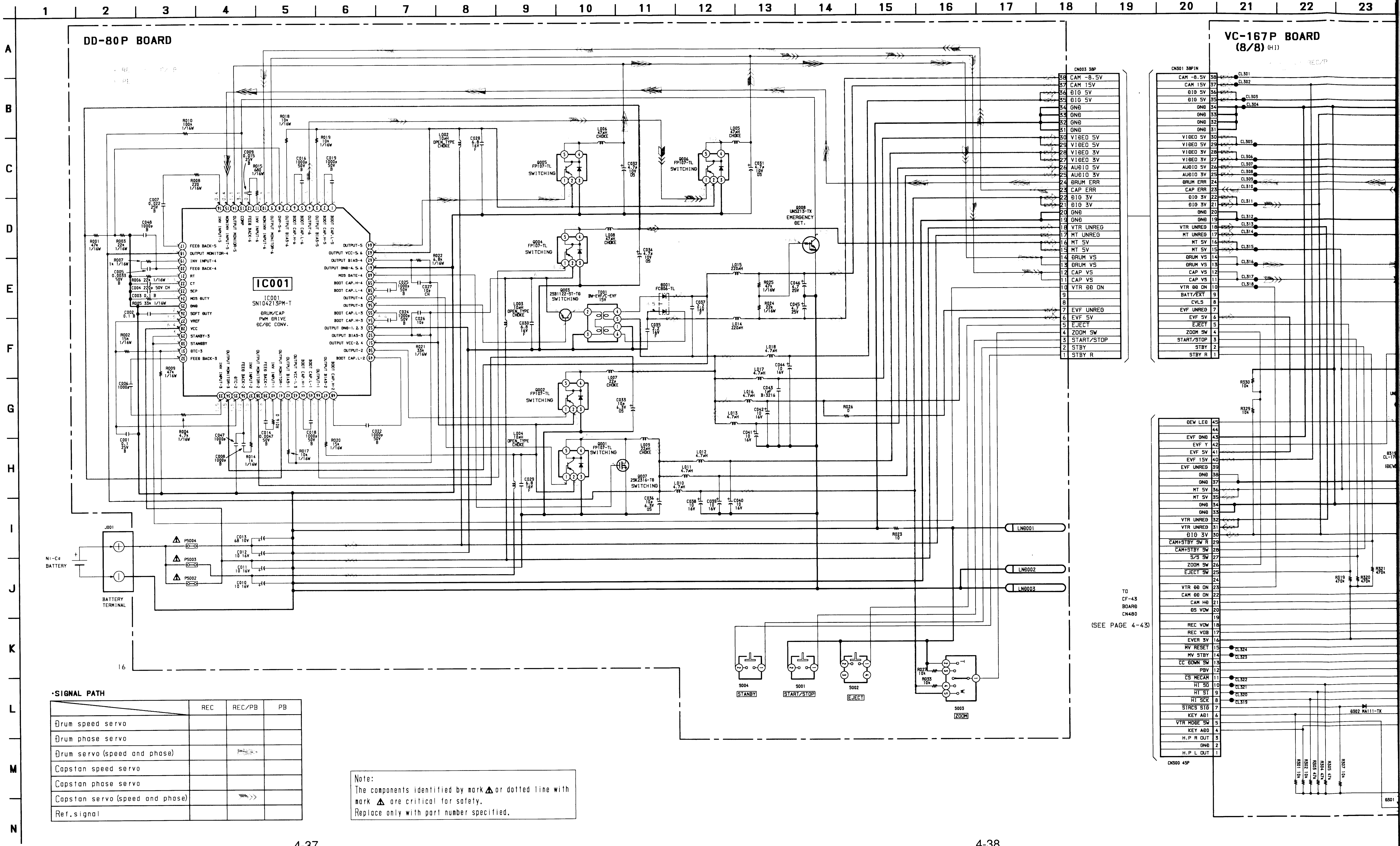
DD-80P BOARD (SIDE B)


EJECT
S3
ZOOM
Q10
C49
C035
C037
1-657-859
22
C
B
A
16
1
2
3
4
5
6
7
8

DD-80P (POWER), VC-167P (VTR SWITCH) SCHEMATIC DIAGRAMS

— Ref. No. DD-80P Board, VC-167P Board; 1,000 Series —

• See page 4-7 for VC-167P BOARD printed wiring board.

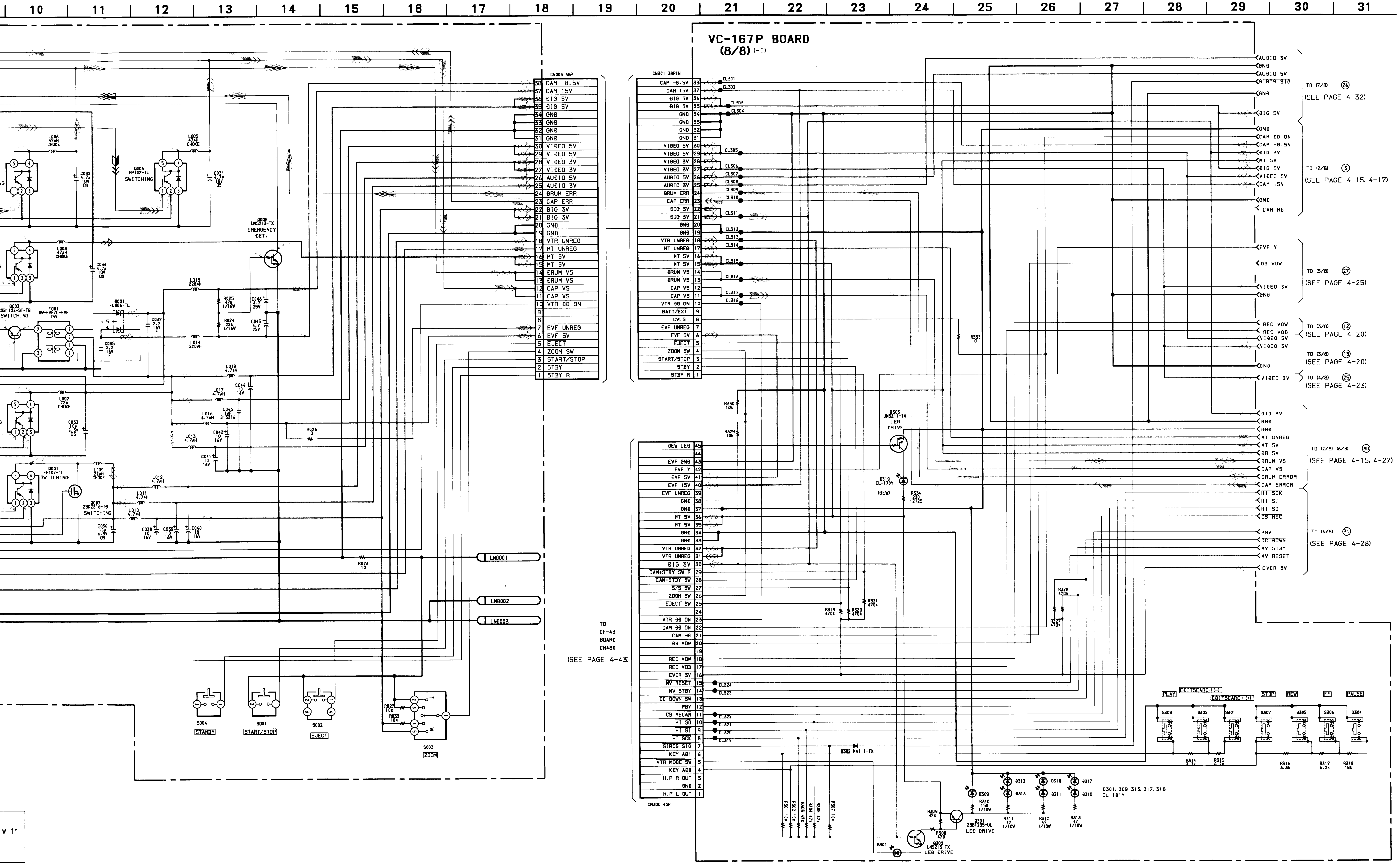

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
A B C D E F G H I J K L M N
DD-80P BOARD
IC001
IC001 SN104213PM-T DRUM/CAP PWM DRIVE DC/DC CONV.
Q005 FP107-TL SWITCHING
Q006 FP107-TL SWITCHING
Q004 FP107-TL SWITCHING
Q003 2SB1122-ST-T0 SWITCHING
T001 DW-EVF/C-EVF
D001 FC806-TL
Q008 UN5213-TX EMERGENCY DET.
Q002 FP107-TL SWITCHING
Q001 FP107-TL SWITCHING
Q007 2SK2316-T0 SWITCHING
L002 10μH OPEN TYPE CHOKE
L003 10μH OPEN TYPE CHOKE
L004 10μH OPEN TYPE CHOKE
J001
Ni-Cd BATTERY
BATTERY TERMINAL
PS004
PS003
PS002
LND001
LND002
LND003
S004 STANBY
S001 START/STOP
S002 EJECT
S003 ZOOM
CN003 38P
38 CAM -8.5V
37 CAM 15V
36 DIG 5V
35 DIG 5V
34 GND
33 GND
32 GND
31 GND
30 VIDEO 5V
29 VIDEO 5V
28 VIDEO 3V
27 VIDEO 3V
26 AUDIO 5V
25 AUDIO 3V
24 DRUM ERR
23 CAP ERR
22 DIG 3V
21 DIG 3V
20 GND
19 GND
18 VTR UNREG
17 MT UNREG
16 MT 5V
15 MT 5V
14 DRUM VS
13 DRUM VS
12 CAP VS
11 CAP VS
10 VTR DD ON
9
8
7 EVF UNREG
6 EVF 5V
5 EJECT
4 ZOOM SW
3 START/STOP
2 STBY
1 STBY R
VC-167P BOARD (8/8) (HI)
CN301 38PIN
CAM -8.5V 38
CAM 15V 37
DIG 5V 36
DIG 5V 35
GND 34
GND 33
GND 32
GND 31
VIDEO 5V 30
VIDEO 5V 29
VIDEO 3V 28
VIDEO 3V 27
AUDIO 5V 26
AUDIO 3V 25
DRUM ERR 24
CAP ERR 23
DIG 3V 22
DIG 3V 21
GND 20
GND 19
VTR UNREG 18
MT UNREG 17
MT 5V 16
MT 5V 15
DRUM VS 14
DRUM VS 13
CAP VS 12
CAP VS 11
VTR DD ON 10
BATT/EXT 9
CVLS 8
EVF UNREG 7
EVF 5V 6
EJECT 5
ZOOM SW 4
START/STOP 3
STBY 2
STBY R 1
CL301 CL302 CL303 CL304 CL305 CL306 CL307 CL308 CL309 CL310 CL311 CL312 CL313 CL314 CL315 CL316 CL317 CL318
R330 10k
R329 10k
DEW LED 45
44
EVF GND 43
EVF Y 42
EVF 5V 41
EVF 15V 40
EVF UNREG 39
GND 38
GND 37
MT 5V 36
MT 5V 35
GND 34
GND 33
VTR UNREG 32
VTR UNREG 31
DIG 3V 30
CAM+STBY SW R 29
CAM+STBY SW 28
S/S SW 27
ZOOM SW 26
EJECT SW 25
24
VTR DD ON 23
CAM DD ON 22
CAM HD 21
DS VDW 20
19
REC VDW 18
REC VDB 17
EVER 3V 16
MV RESET 15
MV STBY 14
CC DOWN SW 13
PBV 12
CS MECAM 11
HI SO 10
HI SI 9
HI SCK 8
SIRCS SIG 7
KEY AD1 6
VTR MODE SW 5
KEY AD0 4
H.P R OUT 3
GND 2
H.P L OUT 1
CN300 45P
TO CF-43 BOARD CN480
(SEE PAGE 4-43)
CL324 CL323 CL322 CL321 CL320 CL319
R319 470k
R320 470k
R321 470k
D302 MA111-TX
R301 10k
R302 10k
R303 47k
R304 47k
R305 47k
R307 10k
D301

·SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)		→	
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)		»	
Ref.signal			

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

-167P BOARD printed wiring board.


10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
VC-167P BOARD
(8/8) (H1)
CN003 38P
38 CAM -8.5V
37 CAM 15V
36 DIG 5V
35 DIG 5V
34 GND
33 GND
32 GND
31 GND
30 VIDEO 5V
29 VIDEO 5V
28 VIDEO 3V
27 VIDEO 3V
26 AUDIO 5V
25 AUDIO 3V
24 DRUM ERR
23 CAP ERR
22 DIG 3V
21 DIG 3V
20 GND
19 GND
18 VTR UNREG
17 MT UNREG
16 MT 5V
15 MT 5V
14 DRUM VS
13 DRUM VS
12 CAP VS
11 CAP VS
10 VTR DD ON
9
8
7 EVF UNREG
6 EVF 5V
5 EJECT
4 ZOOM SW
3 START/STOP
2 STBY
1 STBY R
CN301 38PIN
BATT/EXT
CVLS
CL301
CL302
CL303
CL304
CL305
CL306
CL307
CL308
CL309
CL310
CL311
CL312
CL313
CL314
CL315
CL316
CL317
CL318
L006 47μH CHOKE
L005 47μH CHOKE
Q006 FP107-TL SWITCHING
C032 4.7μ 10V DS
C031 4.7μ 10V DS
Q008 UN5213-TX EMERGENCY DET.
L008 47μH CHOKE
C034 4.7μ 10V DS
L015 220μH
R025 47k 1/16W
R024 22k 1/16W
C046 4.7 25V
C045 4.7 25V
L014 220μH
D001 FC806-TL
C037 2.2 16V F
C035 2.2 16V F
Q003 2SB1122-ST-TB SWITCHING
T001 BV-EVF/C-EVF 15V
L018 4.7μH
C044 10 16V
L017 4.7μH
C043 1μF B:3216
L016 4.7μH
L013 4.7μH
C042 10 16V
C041 10 16V
R026 0
L007 22μ CHOKE
C033 10μ 6.3V DS
Q001 FP107-TL SWITCHING
L009 22μH CHOKE
Q007 2SK2316-TB SWITCHING
L012 4.7μH
L011 4.7μH
L010 4.7μH
C036 10μ 6.3V DS
C038 10 16V
C039 10 16V
C040 10 16V
R023 10
LN6001
LN6002
LN6003
S004 STANBY
S001 START/STOP
S002 EJECT
S003 ZOOM
R022 10k
R033 10k
T
W
TO CF-43 BOARD CN480 (SEE PAGE 4-43)
AUDIO 3V
GND
AUDIO 5V
SIRCS SIG
TO (7/8) (26) (SEE PAGE 4-32)
DIG 5V
CAM DD ON
CAM -8.5V
DIG 3V
MT 5V
VIDEO 5V
CAM 15V
TO (2/8) (3) (SEE PAGE 4-15, 4-17)
CAM HD
EVF Y
DS VDW
VIDEO 3V
TO (5/8) (27) (SEE PAGE 4-25)
REC VDW
REC VDB
TO (3/8) (12) (SEE PAGE 4-20)
TO (3/8) (13) (SEE PAGE 4-20)
TO (4/8) (25) (SEE PAGE 4-23)
MT UNREG
DR 5V
DRUM VS
CAP VS
DRUM ERROR
CAP ERROR
TO (2/8) (6/8) (30) (SEE PAGE 4-15, 4-27)
HI SCK
HI SI
HI SO
CS MEC
PBV
CC DOWN
MV STBY
MV RESET
EVER 3V
TO (6/8) (31) (SEE PAGE 4-28)
R333 0
R330 10k
R329 10k
Q303 UN5211-TX LED DRIVE
D319 CL-170Y (DEW)
R334 220 :2125
CN300 45P
45 DEW LED
44
43 EVF GND
42 EVF Y
41 EVF 5V
40 EVF 15V
39 EVF UNREG
38 GND
37 GND
36 MT 5V
35 MT 5V
34 GND
33 GND
32 VTR UNREG
31 VTR UNREG
30 DIG 3V
29 CAM+STBY SW R
28 CAM+STBY SW
27 S/S SW
26 ZOOM SW
25 EJECT SW
24
23 VTR DD ON
22 CAM DD ON
21 CAM HD
20 DS VDW
19
18 REC VDW
17 REC VDB
16 EVER 3V
15 MV RESET
14 MV STBY
13 CC DOWN SW
12 PBV
11 CS MECAM
10 HI SO
9 HI SI
8 HI SCK
7 SIRCS SIG
6 KEY AD1
5 VTR MODE SW
4 KEY AD0
3 H.P R OUT
2 GND
1 H.P L OUT
CL324
CL323
CL322
CL321
CL320
CL319
R319 470k
R320 470k
R321 470k
R328 470k
R327 470k
D302 MA111-TX
R301 10k
R302 10k
R303 47k
R304 47k
R305 47k
R307 10k
PLAY
EDITSEARCH (-)
EDITSEARCH (+)
STOP
REW
FF
PAUSE
S303
S302
S301
S307
S305
S306
S304
R314 2.2k
R315 4.2k
R316 3.3k
R317 6.2k
R318 18k
D312
D313
D316
D311
D317
D310
D309
D301, 309-313, 317, 318 CL-181Y
R310 150 1/10W
R311 47 1/10W
R312 47 1/10W
R313 47 1/10W
R309 47k
R308 470
Q301 2SB1295-UL LED DRIVE
Q302 UN5213-TX LED DRIVE
D301

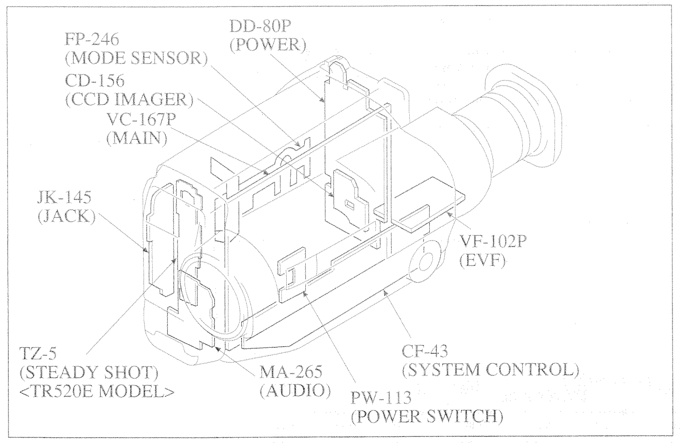
with

CF-43 (SYSTEM CONTROL), PW-113 (POWER SWITCH) PRINTED WIRING BOARDS

— Ref. No. CF-43 Board, PW-113 Board; 2,000 Series —

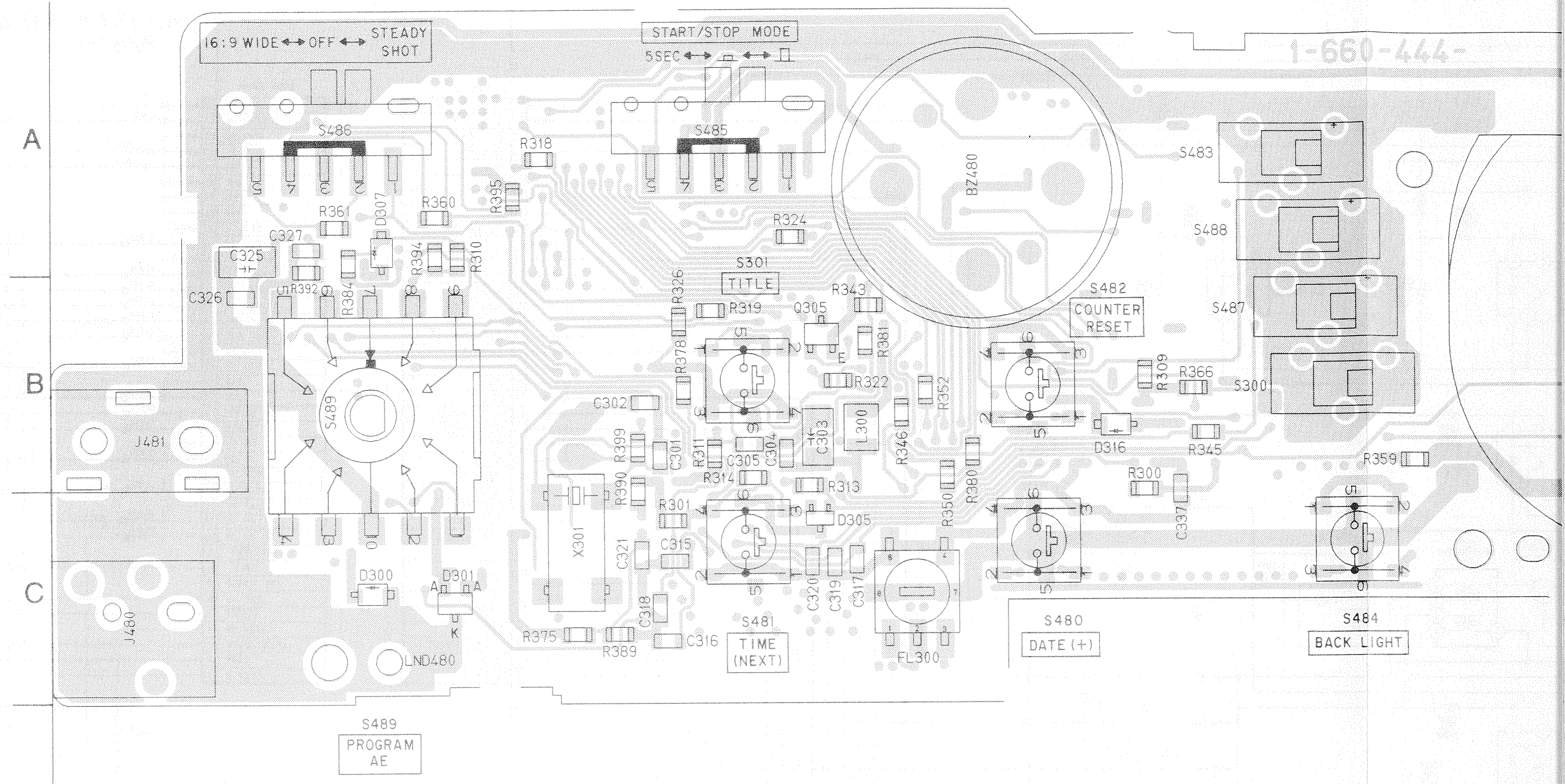
CF-43 BOARD

BH480	B–8	D300	C–2	Q304	F–6	R332	F–5	R376	E–5	S482	B–5
		D301	C–2	Q305	B–4	R333	F–5	R377	E–5	S483	G–6
BZ480	A–5	D303	F–7	Q309	F–8	R334	F–5	R378	B–3	S484	C–7
		D304	G–7	Q311	F–9	R336	G–6	R379	F–5	S485	A–4
C300	E–5	D312	G–7			R337	F–6	R380	B–5	S487	F–6
C301	B–3	D314	F–6	R300	C–6	R338	G–6	R381	B–4	S488	F–6
C302	B–3	D315	G–6	R301	C–3	R339	G–2	R384	B–2	S489	B–2
C303	B–4	D316	B–5	R303	F–3	R340	G–2	R386	E–6		
C304	B–4	D317	F–4	R304	F–9	R342	F–8	R387	G–4	X302	F–3
C305	B–4	D318	G–1	R305	F–9	R343	B–4	R389	C–3	XTL301	F–3
C306	G–4	D321	F–7	R306	F–6	R345	B–6	R390	C–3		
C308	F–5	D323	E–2	R307	F–4	R346	B–5	R392	B–2		
C310	F–5	D324	E–2	R308	F–5	R347	F–9	R393	E–2		
C311	F–5	D325	F–7	R309	B–6	R348	F–9	R394	A–2		
C312	E–4	D327	F–8	R310	A–2	R350	C–5	R395	A–3		
C313	G–5	D328	F–8	R311	B–4	R351	E–5	R396	F–5		
C314	F–6	D331	F–8	R312	F–4	R352	B–5	R397	G–2		
C315	C–3	D334	F–8	R313	C–4	R353	E–5	R398	F–2		
C316	C–4	D335	G–8	R314	B–4	R354	E–5	R399	B–3		
C317	C–4	D480	F–9	R315	F–3	R355	E–5	R480	F–9		
C318	C–3			R316	F–3	R356	E–5	R482	D–4		
C319	C–4	FL300	C–5	R317	F–4	R357	F–2	R483	D–4		
C320	C–4			R318	A–3	R358	E–5	R484	D–4		
C321	C–3	IC301	F–4	R319	B–4	R359	B–7	R485	D–4		
C323	F–2	IC302	F–2	R320	F–4	R362	G–4	R490	F–4		
C325	A–2	IC303	E–4	R321	F–4	R364	D–3	R494	E–1		
C326	B–1			R322	B–4	R365	G–2	R495	E–1		
C327	A–2	J480	D–1	R323	F–5	R366	B–6	R496	E–1		
C328	F–2			R324	A–4	R367	F–6	R497	E–1		
C336	G–1	L300	B–4	R325	F–4	R368	G–8	R499	E–2		
C337	C–6	PS301	G–4	R326	B–3	R370	E–3	R500	F–4		
				R327	F–4	R371	E–3				
CN480	G–3	Q300	G–4	R328	G–4	R372	E–3	S300	E–6		
CN481	F–2	Q301	G–6	R329	G–4	R373	E–3	S301	B–4		
CN482	E–9	Q302	G–5	R330	G–4	R374	F–3	S480	C–5		
CN483	E–6	Q303	F–6	R331	G–5	R375	C–3	S481	C–4		

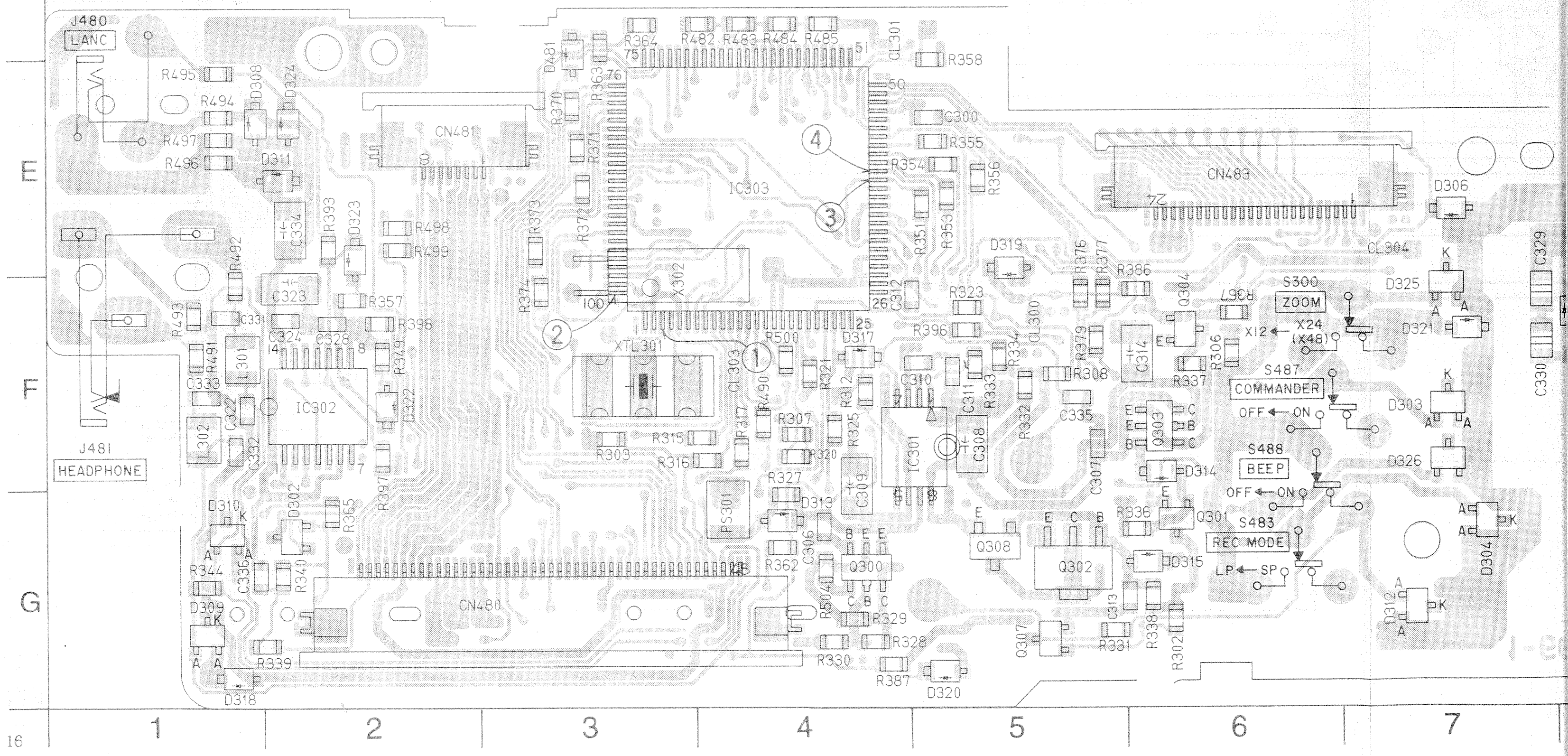

FP-246
(MODE SENSOR)
DD-80P
(POWER)
CD-156
(CCD IMAGER)
VC-167P
(MAIN)
JK-145
(JACK)
VF-102P
(EVF)
TZ-5
(STEADY SHOT)
<TR520E MODEL>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

There are few cases that the part printed on this diagram isn't mounted in this model.

CF-43 BOARD (SIDE A)

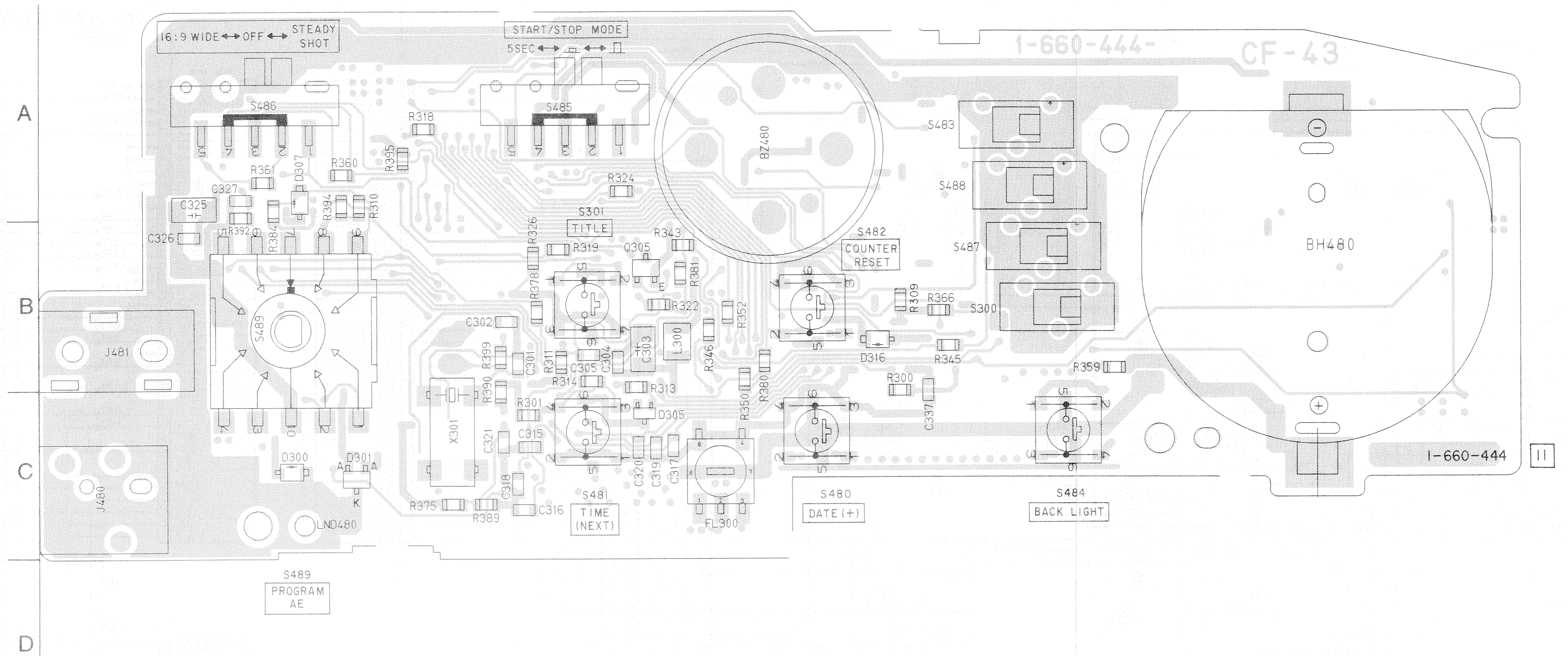

A
B
C
D
16:9 WIDE ↔ OFF ↔ STEADY SHOT
START/STOP MODE
5SEC
1-660-444-
S486
S485
BZ480
S483
S488
S487
S300
S301
TITLE
S482
COUNTER RESET
S489
J481
J480
X301
D300
D301
LND480
FL300
S481
TIME (NEXT)
S480
DATE (+)
S484
BACK LIGHT
S489
PROGRAM AE

CF-43 BOARD (SIDE B)

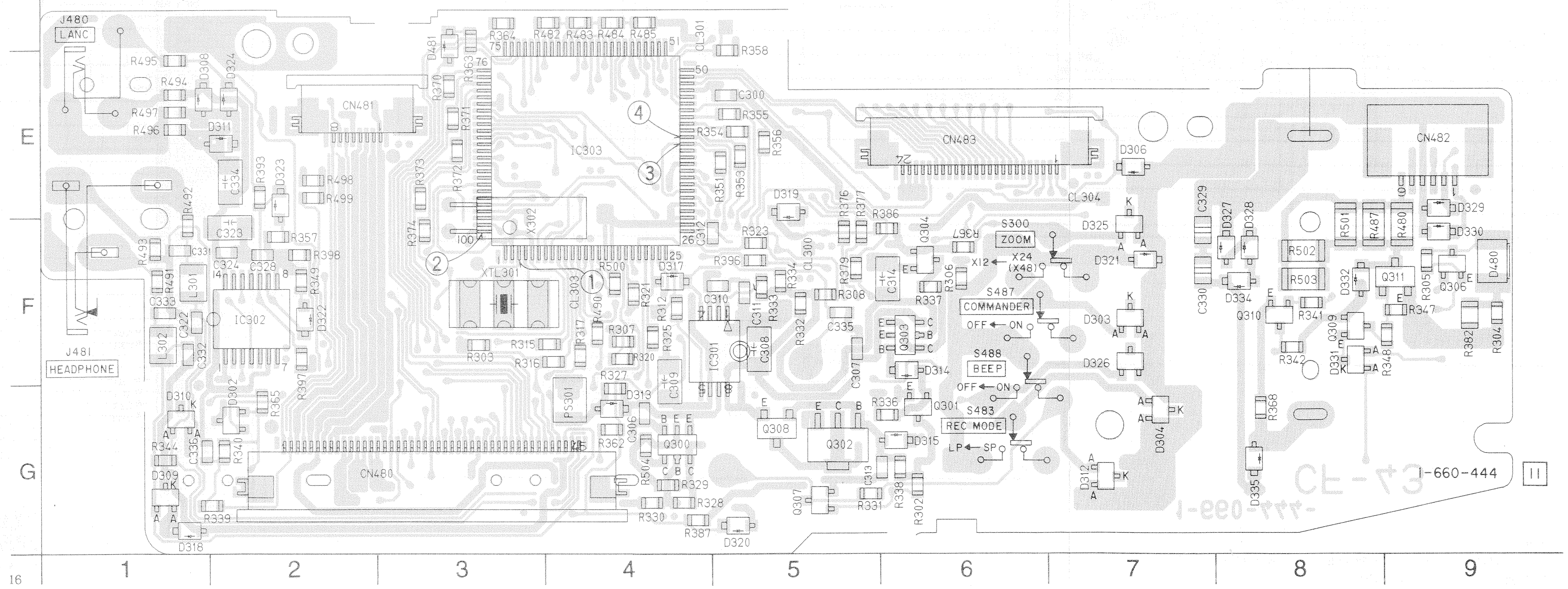

E
F
G
J480
LANC
J481
HEADPHONE
CN481
IC303
CN483
IC302
XTL301
X302
IC301
PS301
CN480
S300
ZOOM
X12 ← X24 (X48)
S487
COMMANDER
OFF ← ON
S488
BEEP
OFF ← ON
S483
REC MODE
LP ← SP
①
②
③
④
1
2
3
4
5
6
7

There are few cases that the part printed on this diagram isn't mounted in this model.

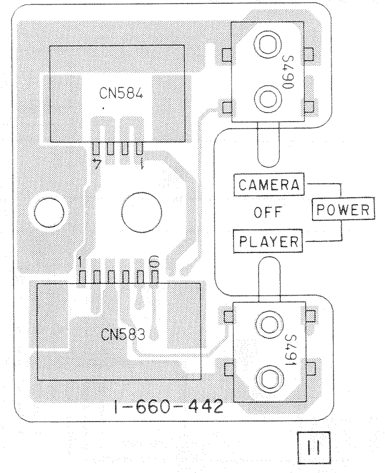
CF-43 BOARD (SIDE A)


16:9 WIDE ↔ OFF ↔ STEADY SHOT
START/STOP MODE
5SEC ↔
S486
S485
R318
R395
R360
R361
D307
C327
C325
C326
R392
R384
R394
R310
S489
J481
J480
D300
D301
LND480
R375
R389
C316
S481
TIME (NEXT)
FL300
S480
DATE (+)
S484
BACK LIGHT
S301
TITLE
R324
R326
R319
Q305
R343
R381
R378
R322
L300
R352
C302
R399
R390
C301
R311
C305
C304
C303
R314
R313
R346
R380
R350
R301
C315
D305
X301
C321
C318
C320
C319
C317
BZ480
S482
COUNTER RESET
R309
R366
S300
D316
R345
R300
C337
R359
S483
S488
S487
BH480
1-660-444-
CF-43
1-660-444
S489
PROGRAM AE
A
B
C
D

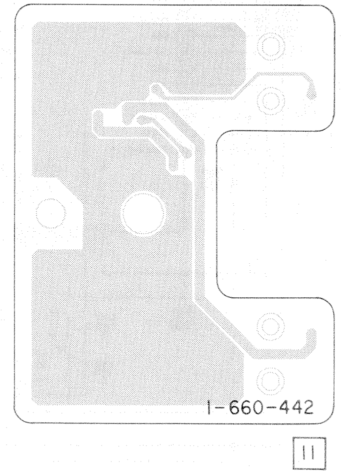
CF-43 BOARD (SIDE B)


J480
LANC
R495
D308
D324
R494
R497
D311
R496
CN481
D481
R364
R482
R483
R484
R485
CL301
R358
R370
R363
R371
IC303
④
③
②
①
R354
R355
R356
R351
R353
C334
R393
D323
R498
R499
R492
R373
R372
R374
X302
XTL301
C328
R357
R398
C331
C324
L301
IC302
R349
D322
R491
R493
C333
C322
C332
L302
J481
HEADPHONE
R397
D310
D302
R365
R344
C336
R340
D309
D318
R339
CN480
R303
R315
R316
R500
D317
CL303
R490
R317
R307
R321
R312
R325
R320
R327
C309
PS301
D313
C306
R362
R504
Q300
R329
R328
R330
R387
D320
IC301
C310
C311
R333
C308
R323
R396
C312
CN483
D319
R376
R377
R386
Q304
R367
S300
ZOOM
X12
X24 (X48)
S487
COMMANDER
OFF ← ON
S488
BEEP
OFF ← ON
S483
REC MODE
LP ← SP
R306
C314
R337
Q309
D314
Q301
R336
D315
R338
R331
R302
Q307
Q308
Q302
C313
C335
C307
R332
R379
R308
R334
CL300
CL304
D306
D325
D321
D303
D326
D304
D312
C329
D327
D328
C330
D334
Q310
R341
R342
D332
Q311
R305
Q306
D331
R348
R501
R487
R480
D329
D330
R502
R503
D480
R347
R382
R304
R368
D335
CN482
1-660-444
1-099-1
CF-43
E
F
G
1
2
3
4
5
6
7
8
9

PW-113 BOARD (SIDE A)

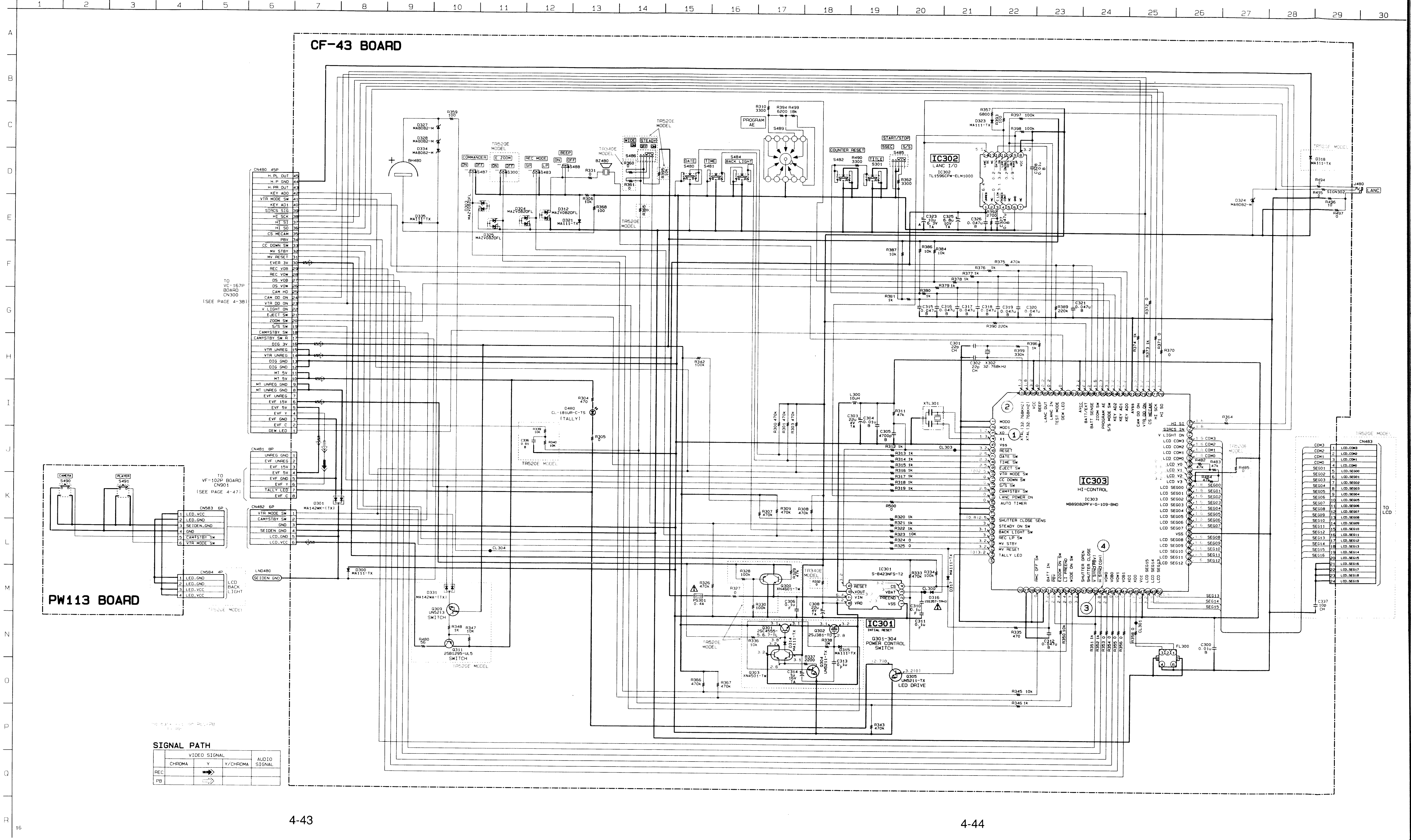

CN584
S490
CAMERA
OFF
PLAYER
POWER
CN583
S491
1-660-442
11

PW-113 BOARD (SIDE B)



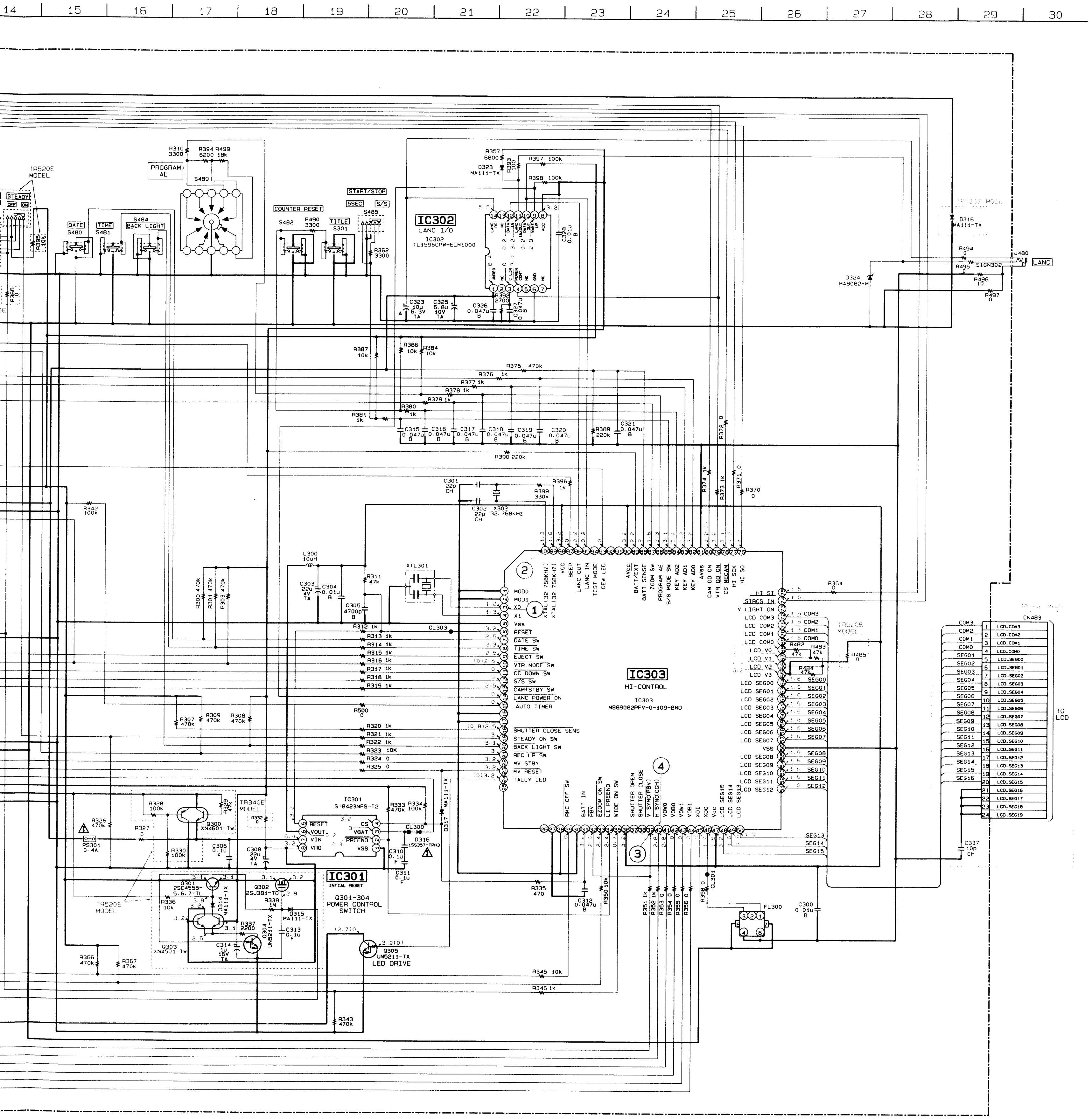
CF-43 (SYSTEM CONTROL), PW-113 (POWER SWITCH) SCHEMATIC DIAGRAMS

— Ref. No. CF-43 Board, PW-113 Board; 2,000 Series —

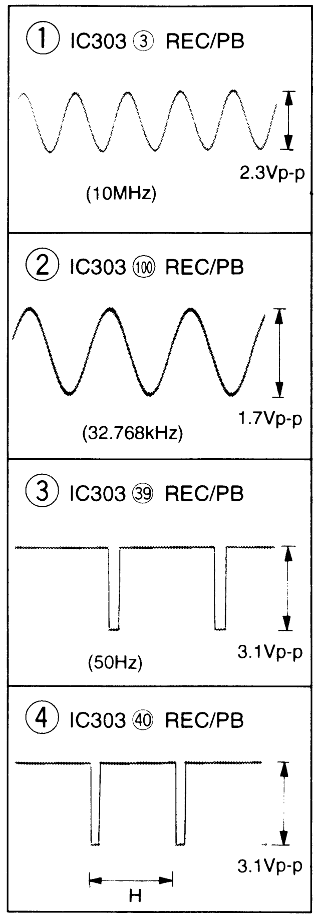

CF-43 BOARD
PW113 BOARD
IC301
S-8423NFS-T2
INTIAL RESET
Q301-304
POWER CONTROL SWITCH
IC302
LANC I/O
TL1595CPW-ELM1000
IC303
HI-CONTROL
MB89082PFV-G-109-BND
Q305
UN5211-TX
LED DRIVE
Q309
UN5213
SWITCH
Q311
2SB1295-UL5
SWITCH
CN480 45P
TO VC-167P BOARD CN300 (SEE PAGE 4-38)
CN481 8P
TO VF-102P BOARD CN901 (SEE PAGE 4-47)
CN482 6P
CN583 6P
CN584 4P
CN483
TO LCD
LCD BACK LIGHT
J480
LANC
BZ480
BH480
D480
CL-181UR-C-TS
(TALLY)
S490 CAMERA
S491 PLAYER
PROGRAM AE
COUNTER RESET
START/STOP
TR520E MODEL
TR340E MODEL

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC		➡		
PB		⇨		


14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
TR520E MODEL
PROGRAM AE
S489
DATE S480
TIME S481
S484 BACK LIGHT
COUNTER RESET
S482
R490 3300
TITLE S301
START/STOP
5SEC
S/S
S485
R362 3300
IC302 LANC I/O
IC302 TL1596CPW-ELM1000
R357 6800
D323 MA111-TX
R397 100k
R398 100k
C323 10μ 6.3V TA
C325 6.8μ 10V TA
C326 0.047μ B
R393 2700
D318 MA111-TX
R494
R495
SIGN302
J480
LANC
R496 10
R497 0
D324 MA8082-M
R387 10k
R386 10k
R384 10k
R375 470k
R376 1k
R377 1k
R378 1k
R379 1k
R380 1k
R381 1k
C315 0.047μ B
C316 0.047μ B
C317 0.047μ B
C318 0.047μ B
C319 0.047μ B
C320 0.047μ B
R389 220k
C321 0.047μ B
R390 220k
R372 0
R374 1k
R373 1k
R371 0
R370 0
C301 22p CH
C302 22p CH
X302 32.768kHz
R399 330k
R396 1k
R342 100k
L300 10μH
C303 22μ 4V TA
C304 0.01μ B
R311 47k
XTL301
C305 4700p B
R350 470k
R351 470k
R303 470k
R312 1k
CL303
R313 1k
R314 1k
R315 1k
R316 1k
R317 1k
R318 1k
R319 1k
R500 0
R320 1k
R321 1k
R322 1k
R323 10K
R324 0
R325 0
R307 470k
R309 470k
R308 470k
IC303
HI-CONTROL
IC303 MB89082PFV-G-109-BND
MOD0
MOD1
X0
X1
VSS
RESET
DATE SW
TIME SW
EJECT SW
VTR MODE SW
CC DOWN SW
S/S SW
CAM/STBY SW
LANC POWER ON
AUTO TIMER
SHUTTER CLOSE SENS
STEADY ON SW
BACK LIGHT SW
REC LP SW
MV STBY
MV RESET
TALLY LED
XTAL 132.768KHZ
VCC
BEEP
LANC IN
LANC OUT
TEST MODE
DEW LED
AVCC
BATT/EXT
BATT SENSE
ZOOM
PROGRAM AE
S/S MODE SW
KEY AD2
KEY AD1
KEY AD0
AVSS
CAM DD ON
VTR DD ON
CS RECAM
HI SCK
HI SO
HI SI
SIRCS IN
V LIGHT ON
LCD COM3
LCD COM2
LCD COM1
LCD COM0
LCD V0
LCD V1
LCD V2
LCD V3
LCD SEG00
LCD SEG01
LCD SEG02
LCD SEG03
LCD SEG04
LCD SEG05
LCD SEG06
LCD SEG07
VSS
LCD SEG08
LCD SEG09
LCD SEG10
LCD SEG11
LCD SEG12
LCD SEG13
LCD SEG14
LCD SEG15
NMC OFF SW
BATT IN
EZOOM ON SW
LT PREEND
WIDE ON SW
SHUTTER OPEN
SHUTTER CLOSE
V SYNC
H SYNC
VOB0
VOB1
XO1
XO0
R364 0
TR520E MODEL
R482 47k
R483 47k
R484 47k
R485 0
CN483
TO LCD
COM3
COM2
COM1
COM0
SEG01
SEG02
SEG03
SEG04
SEG05
SEG06
SEG07
SEG08
SEG09
SEG10
SEG11
SEG12
SEG13
SEG14
SEG15
SEG16
C337 10p CH
IC301 S-8423NFS-T2
R333 470k
R334 100k
D317 MA111-TX
RESET
VOUT
VIN
VRO
CS
VBAT
PREEND
VSS
CL302
D316 1SS357-TPH3
C310 0.1μ F
C311 0.1μ F
IC301 INITIAL RESET
Q301-304 POWER CONTROL SWITCH
R328 100k
R329
Q300 XN4601-TW
TR340E MODEL
R332 0
R326 470k
R327 0
PS301 0.4A
R330 100k
C306 0.1μ F
C308 22μ 4V TA
Q301 2SC4555-5,6,7-TL
Q302 2SJ381-TD
R338 1k
D315 MA111-TX
D314 MA111-TX
R336 10k
TR520E MODEL
Q303 XN4501-TW
R337 2200
Q304 UN5211-TX
C313 0.1μ
C314 1μ 16V TA
R366 470k
R367 470k
Q305 UN5211-TX LED DRIVE
R335 470
C312 0.047μ B
R350 10k
R345 10k
R346 1k
R343 470k
R351 1k
R352 1k
R353 0
R354 0
R355 0
R356 0
R358 0
CL301
FL300
C300 0.01μ B
SEG13
SEG14
SEG15

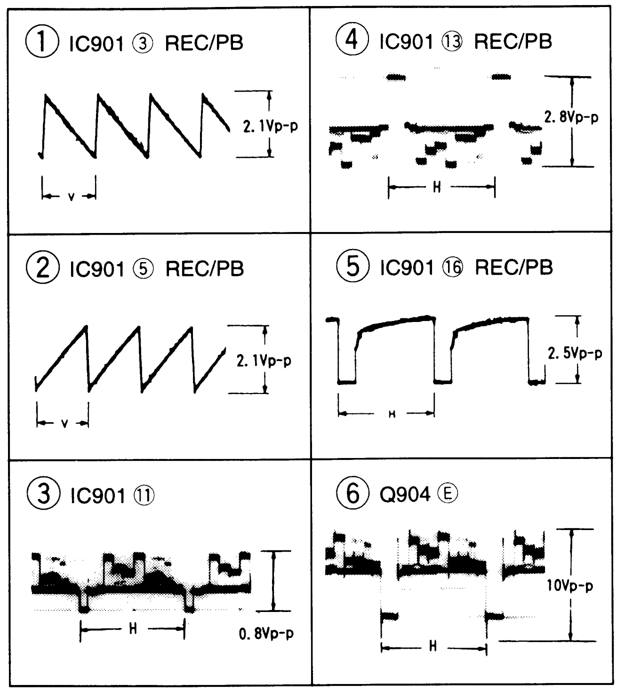
CF-43 BOARD

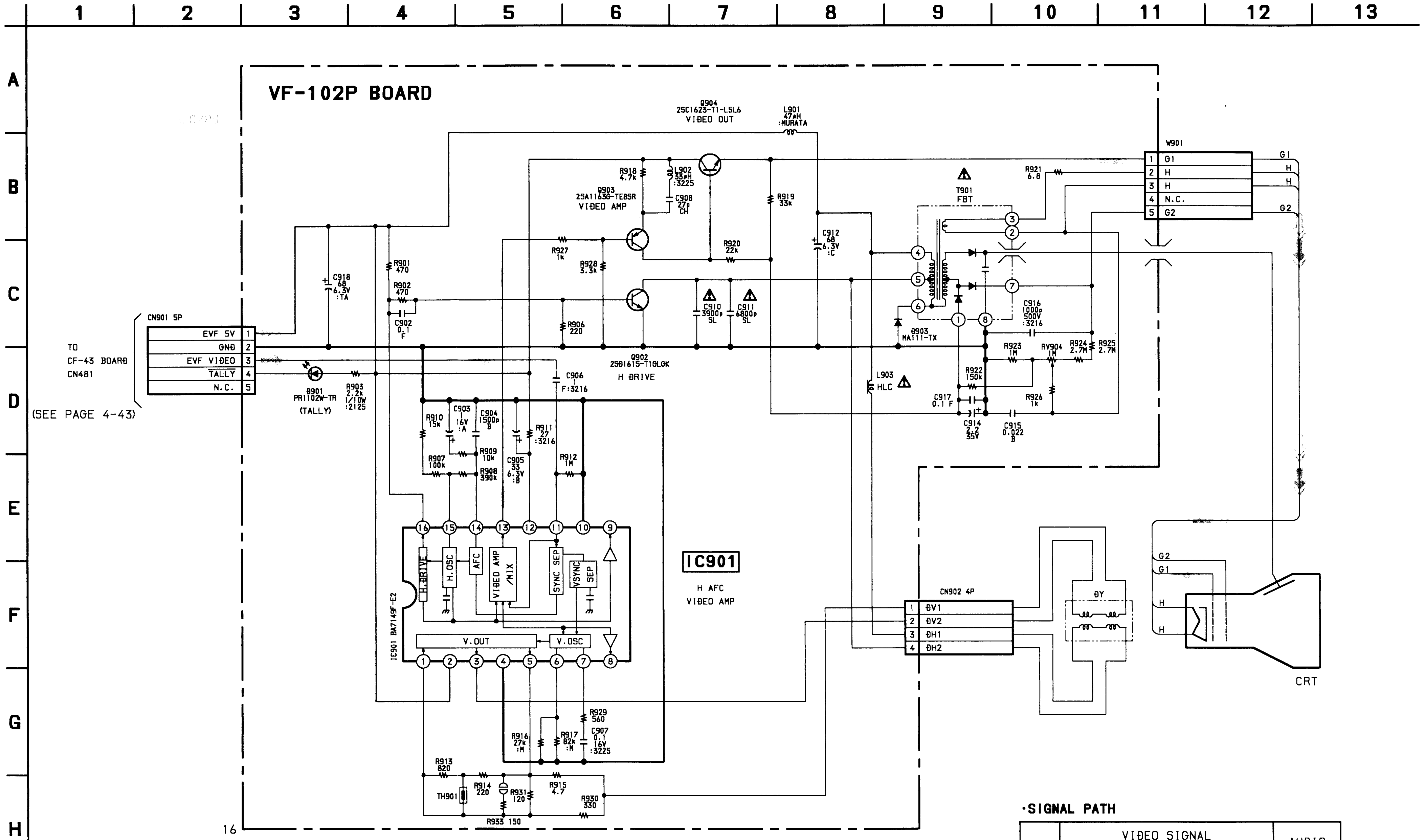

① IC303 ③ REC/PB
2.3Vp-p
(10MHz)
② IC303 ⑩⓪ REC/PB
1.7Vp-p
(32.768kHz)
③ IC303 ㊴ REC/PB
3.1Vp-p
(50Hz)
④ IC303 ㊵ REC/PB
3.1Vp-p
H

VF-102P (EVF) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

— Ref. No. : VF-102P Board; 6,000 Series —

VF-102P BOARD

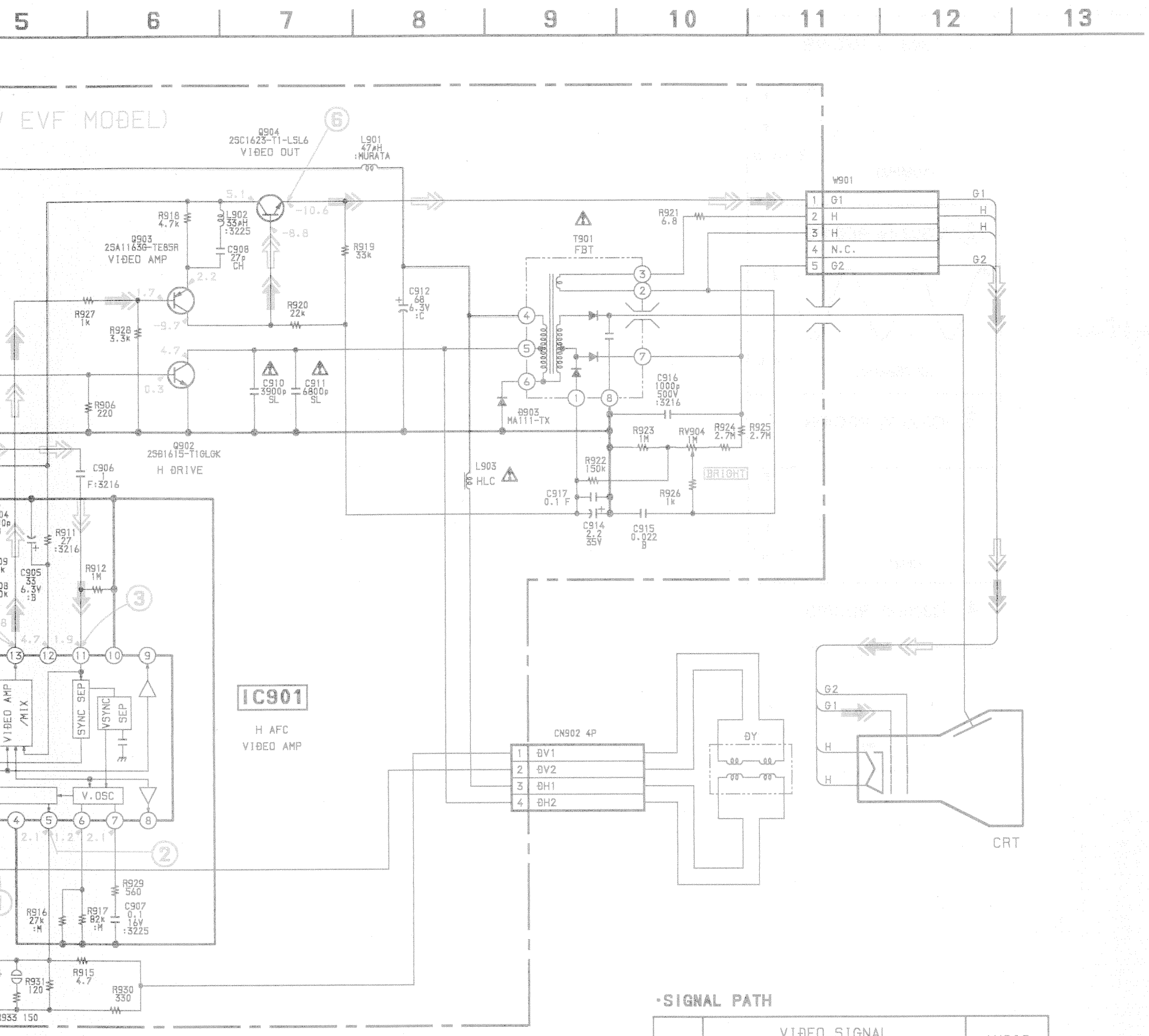



1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
VF-102P BOARD
Q904
2SC1623-T1-L5L6
VIDEO OUT
L901
47μH
:MURATA
R918
4.7k
L902
33μH
:3225
Q903
2SA1163G-TE85R
VIDEO AMP
C908
27p
CH
R919
33k
R921
6.8
T901
FBT
W901
1 G1
2 H
3 H
4 N.C.
5 G2
G1
H
H
G2
C912
68
6.3V
:C
R920
22k
R927
1k
R928
3.3k
C918
68
6.3V
:TA
R901
470
R902
470
C902
0.1
F
R906
220
C910
3900p
SL
C911
6800p
SL
C916
1000p
500V
:3216
D903
MA111-TX
CN901 5P
TO
CF-43 BOARD
CN481
(SEE PAGE 4-43)
EVF 5V 1
GND 2
EVF VIDEO 3
TALLY 4
N.C. 5
D901
PR1102W-TR
(TALLY)
R903
2.2k
1/10W
:2125
C906
F:3216
Q902
2SB1615-T10LQK
H DRIVE
L903
HLC
R923
1M
RV904
1M
R924
2.7M
R925
2.7M
R922
150k
R926
1k
C917
0.1 F
C914
2.2
35V
C915
0.022
B
R910
15k
C903
1
16V
:A
C904
1500p
B
R911
27
:3216
R909
10k
R907
100k
R908
390k
C905
33
6.3V
:B
R912
1M
H.DRIVE
H.OSC
AFC
VIDEO AMP
MIX
SYNC SEP
VSYNC SEP
V.OUT
V.OSC
IC901 BA7149F-E2
IC901
H AFC
VIDEO AMP
CN902 4P
1 DV1
2 DV2
3 DH1
4 DH2
DY
G2
G1
H
H
CRT
R929
560
C907
0.1
16V
:3225
R916
27k
:M
R917
82k
:M
R913
820
TH901
R914
220
R931
120
R915
4.7
R930
330
R933 150
16

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

·SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				
PB				

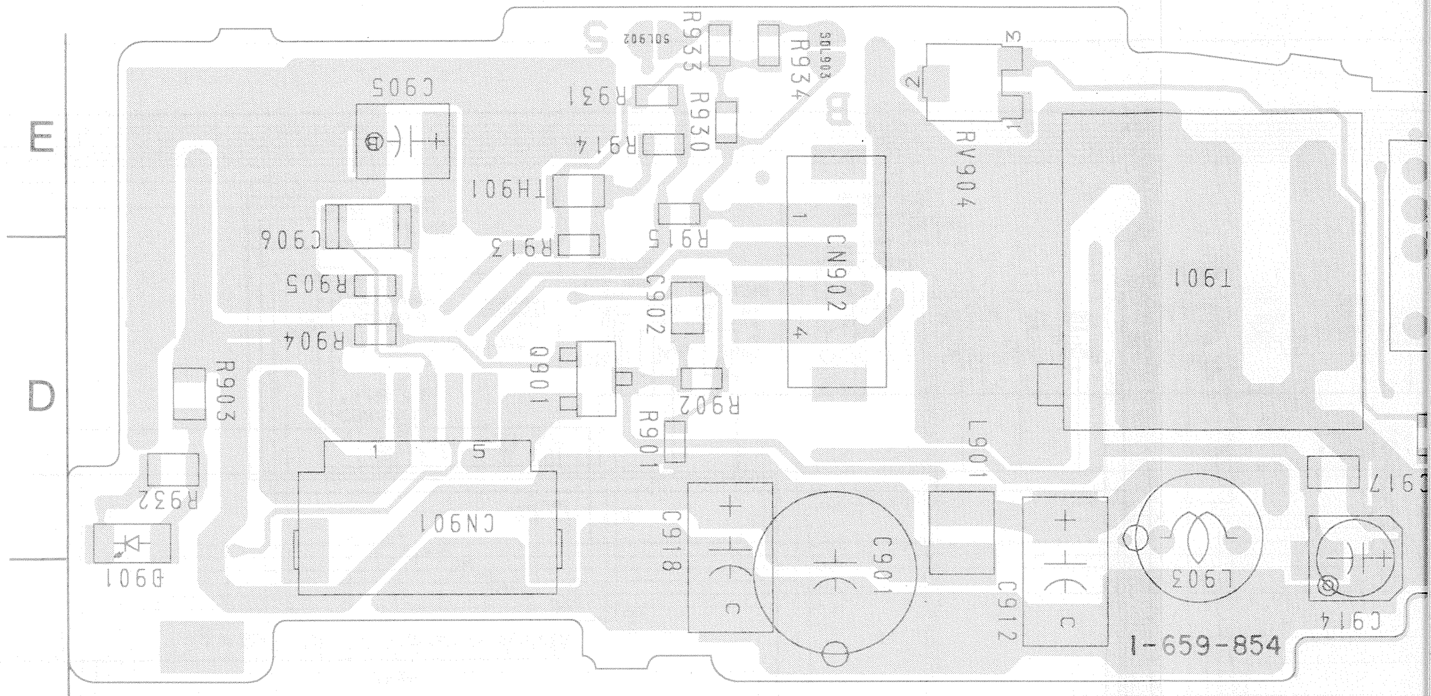

5
6
7
8
9
10
11
12
13
EVF MODEL)
Q904
2SC1623-T1-L5L6
VIDEO OUT
L901
47μH
:MURATA
⑥
5.1
-10.6
-8.8
R918
4.7k
L902
33μH
:3225
Q903
2SA1163G-TE85R
VIDEO AMP
C908
27p
CH
2.2
R919
33k
1.7
-9.7
R927
1k
R928
3.3k
R920
22k
C912
68
6.3V
:C
4.7
0.3
C910
3900p
SL
C911
6800p
SL
R906
220
Q902
2SB1615-T1GLGK
H DRIVE
C906
1
F:3216
T901
FBT
D903
MA111-TX
L903
HLC
R921
6.8
W901
1 G1
2 H
3 H
4 N.C.
5 G2
G1
H
H
G2
C916
1000p
500V
:3216
R923
1M
RV904
1M
R924
2.7M
R925
2.7M
R922
150k
C917
0.1 F
R926
1k
BRIGHT
C914
2.2
35V
C915
0.022
B
R911
27
:3216
C905
33
6.3V
:B
R912
1M
③
4.7
1.9
13
12
11
10
9
VIDEO AMP /MIX
SYNC SEP
VSYNC SEP
V.OSC
IC901
H AFC
VIDEO AMP
4
5
6
7
8
2.1
1.2
2.1
②
R929
560
R916
27k
:M
R917
82k
:M
C907
0.1
16V
:3225
R931
120
R915
4.7
R930
330
R933 150
CN902 4P
1 BV1
2 BV2
3 BH1
4 BH2
DY
G2
G1
H
H
CRT

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

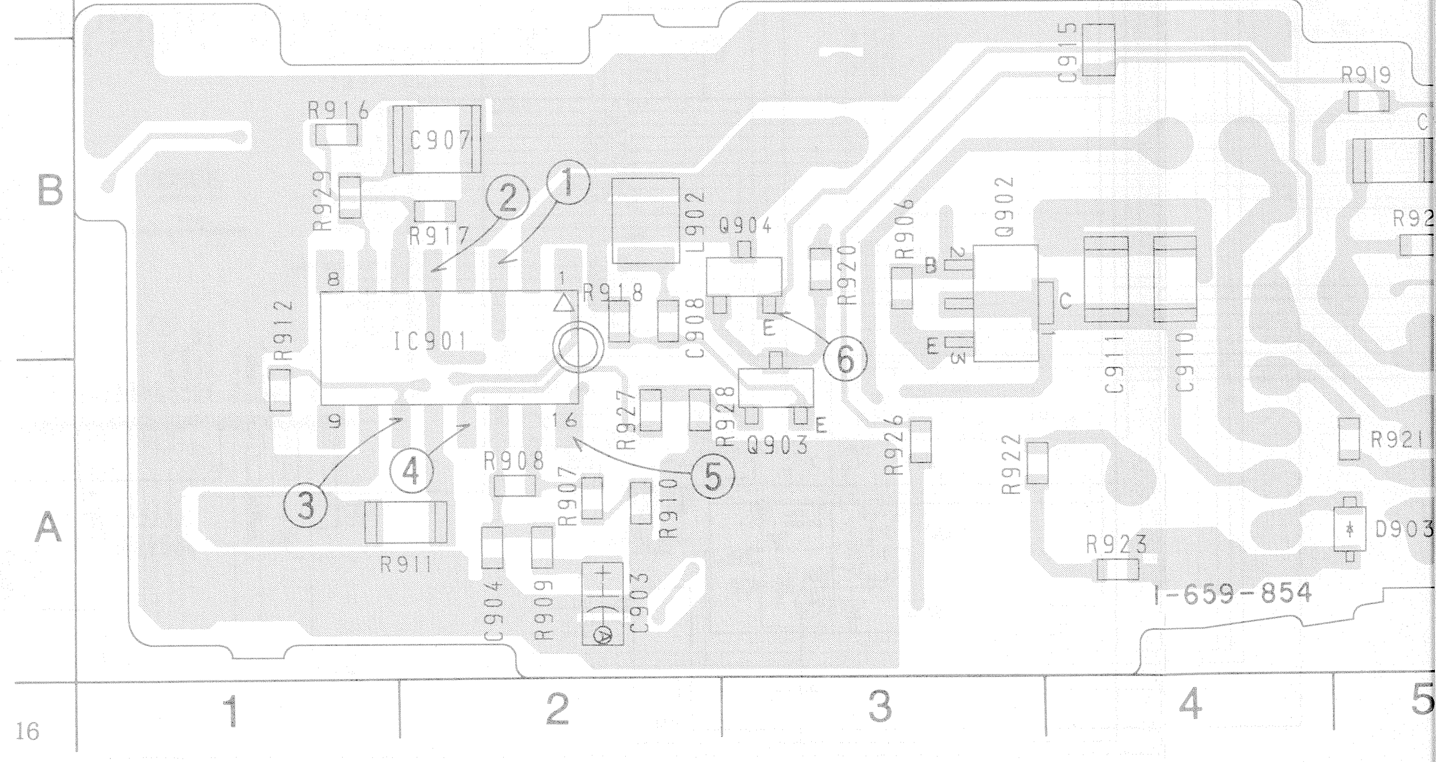
·SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC		⇛		
PB		⇨		

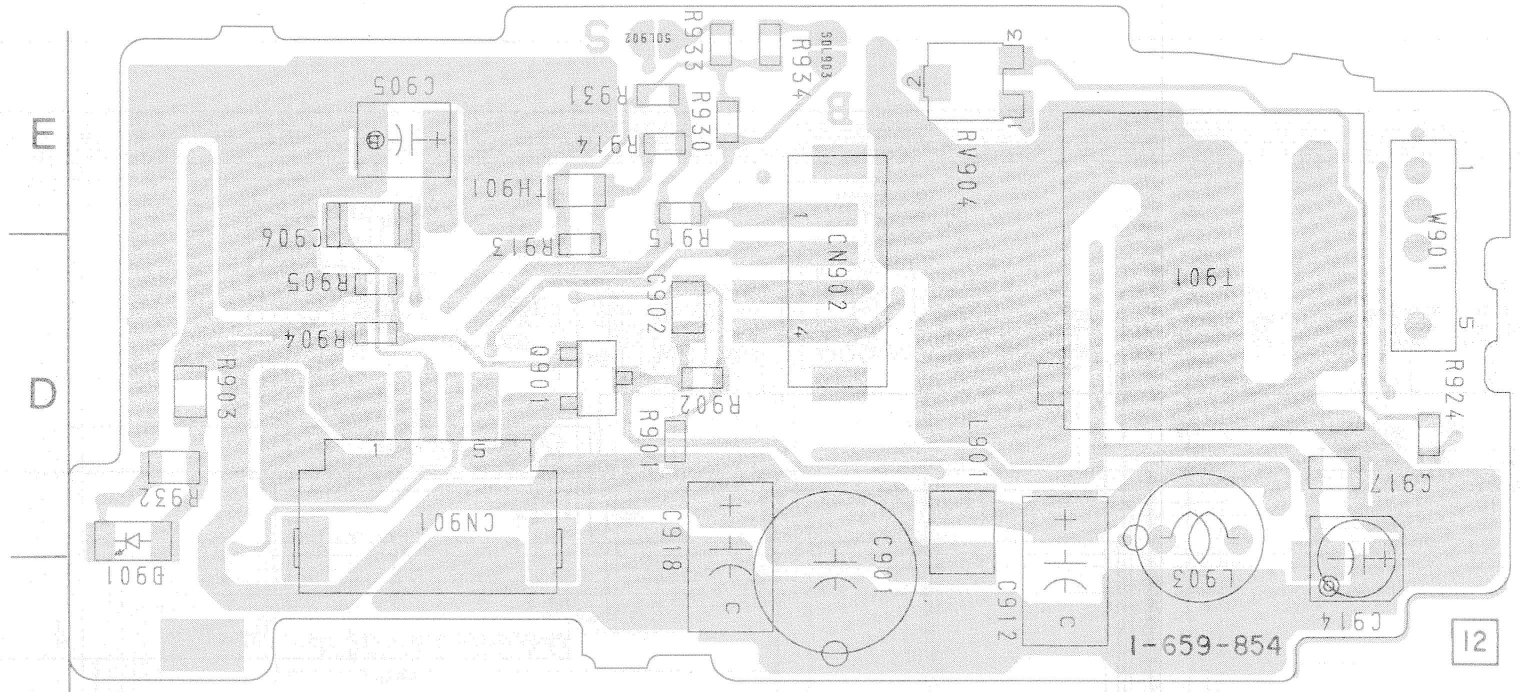
VF-102P BOARD (SIDE A)


E
D
C905
R931
R933
R930
R934
R914
TH901
C906
R913
R915
R905
C902
CN902
R904
Q901
R903
R902
R901
T901
RV904
L901
R932
CN901
C918
C901
C912
L903
C914
C917
D901
1-659-854

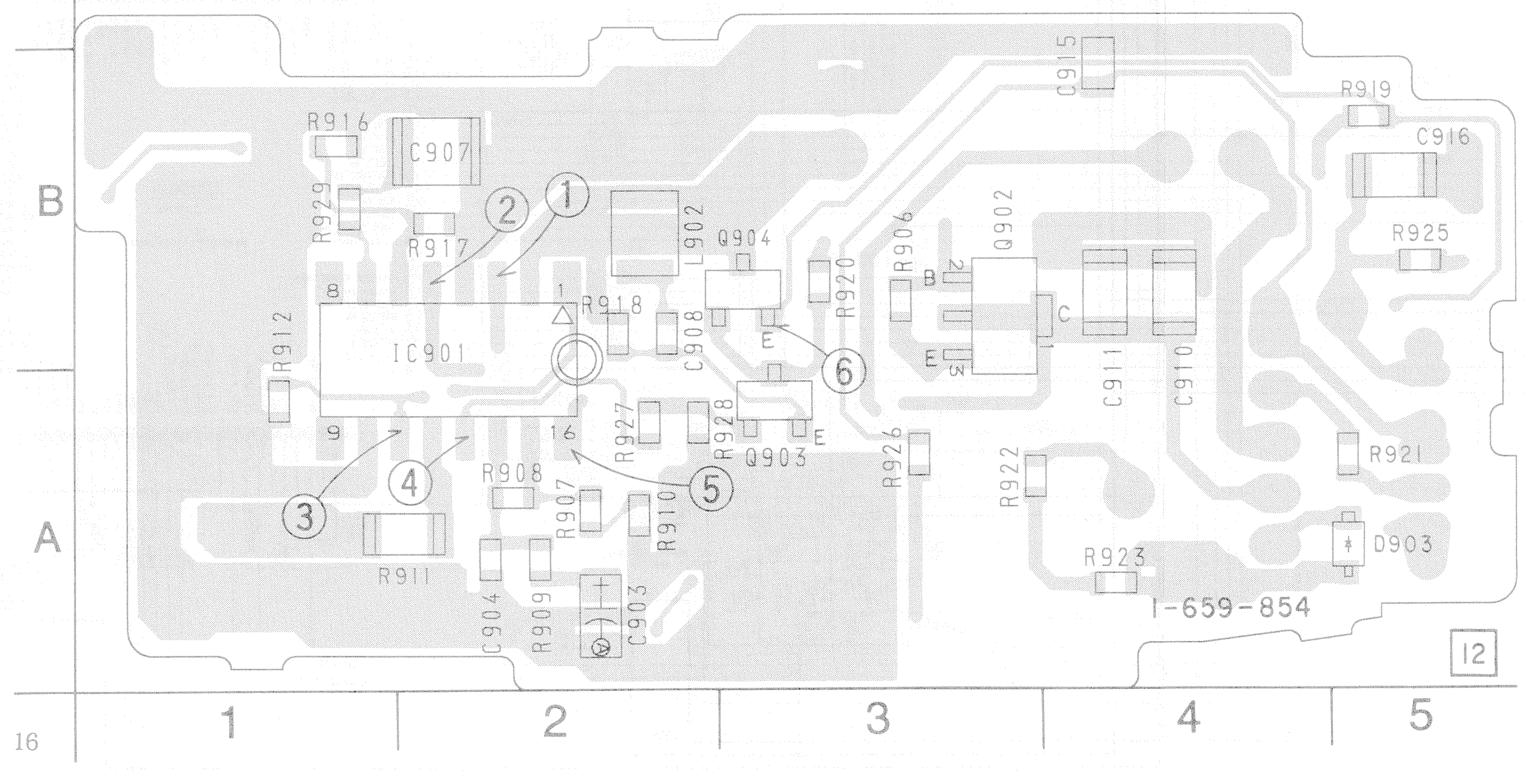
VF-102P BOARD (SIDE B)


C
B
A
C915
R919
R916
C907
R929
R917
②
①
L902
Q904
Q902
R906
R920
R912
IC901
R918
C908
Q903
C911
C910
R927
R928
R926
R922
R921
③
④
⑤
⑥
R908
R907
R910
R911
C904
R909
C903
R923
D903
1-659-854
16
1
2
3
4
5

VF-102P BOARD (SIDE A)

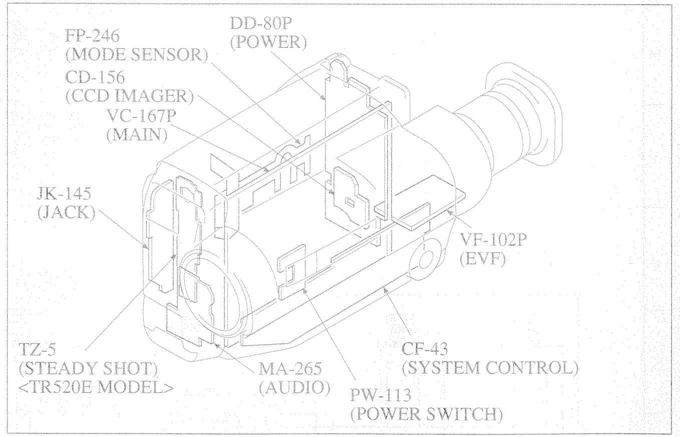

E
D
C
C905
TH901
R931
R930
R914
R933
R934
RV904
W901
C906
R913
R915
CN902
T901
R905
C902
R904
D901
R903
R902
R901
L901
R924
C917
R932
CN901
C918
C901
C912
L903
C914
1-659-854
12

VF-102P BOARD (SIDE B)


B
A
R916
C907
R929
R917
Q904
L902
R912
IC901
R918
C908
R920
R906
Q902
C911
C910
C915
R919
C916
R925
R927
R928
Q903
R926
R922
R921
R908
R907
R910
R911
C904
R909
C903
R923
D903
1-659-854
12
①
②
③
④
⑤
⑥
16
1
2
3
4
5

VF-102P BOARD

C902	D–3	L903	D–4	R922	A–3
C903	A–2			R923	A–4
C904	A–2	Q902	B–3	R924	D–5
C905	E–2	Q903	A–3	R925	B–5
C906	D–1	Q904	B–3	R926	A–3
C907	B–2			R927	A–2
C908	B–2	R901	D–2	R928	A–3
C910	B–4	R902	D–3	R929	B–1
C911	B–4	R903	D–1	R930	E–3
C912	D–4	R906	B–3	R931	E–2
C914	C–5	R907	A–2	R933	E–3
C915	B–4	R908	A–2		
C916	B–5	R909	A–2	RV904	E–3
C917	D–5	R910	A–2		
C918	D–3	R911	A–2	T901	D–4
		R912	B–1		
CN901	D–2	R913	D–2	TH901	E–2
		R914	E–2		
D901	D–1	R915	E–3	W901	E–5
D903	A–5	R916	B–1		
		R917	B–2		
IC901	B–2	R918	B–2		
		R919	B–5		
L901	D–3	R920	B–3		
L902	B–2	R921	A–5		


FP-246
(MODE SENSOR)
DD-80P
(POWER)
CD-156
(CCD IMAGER)
VC-167P
(MAIN)
JK-145
(JACK)
VF-102P
(EVF)
TZ-5
(STEADY SHOT)
<TR520E MODEL>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

TR520E MODEL

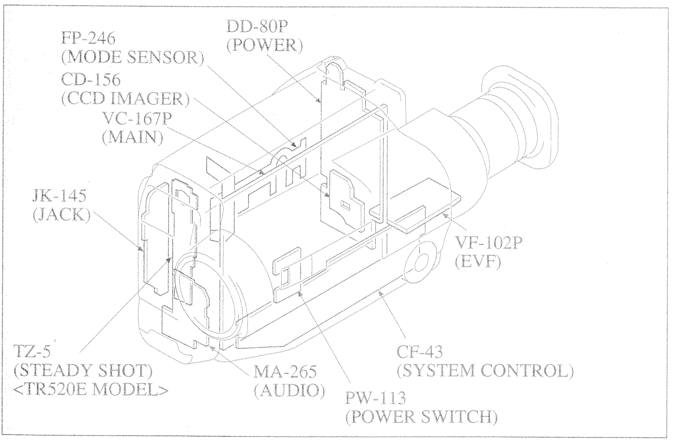
There are few cases that the part printed on this diagram isn't mounted in this model.

TZ-5 (STEADY SHOT) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

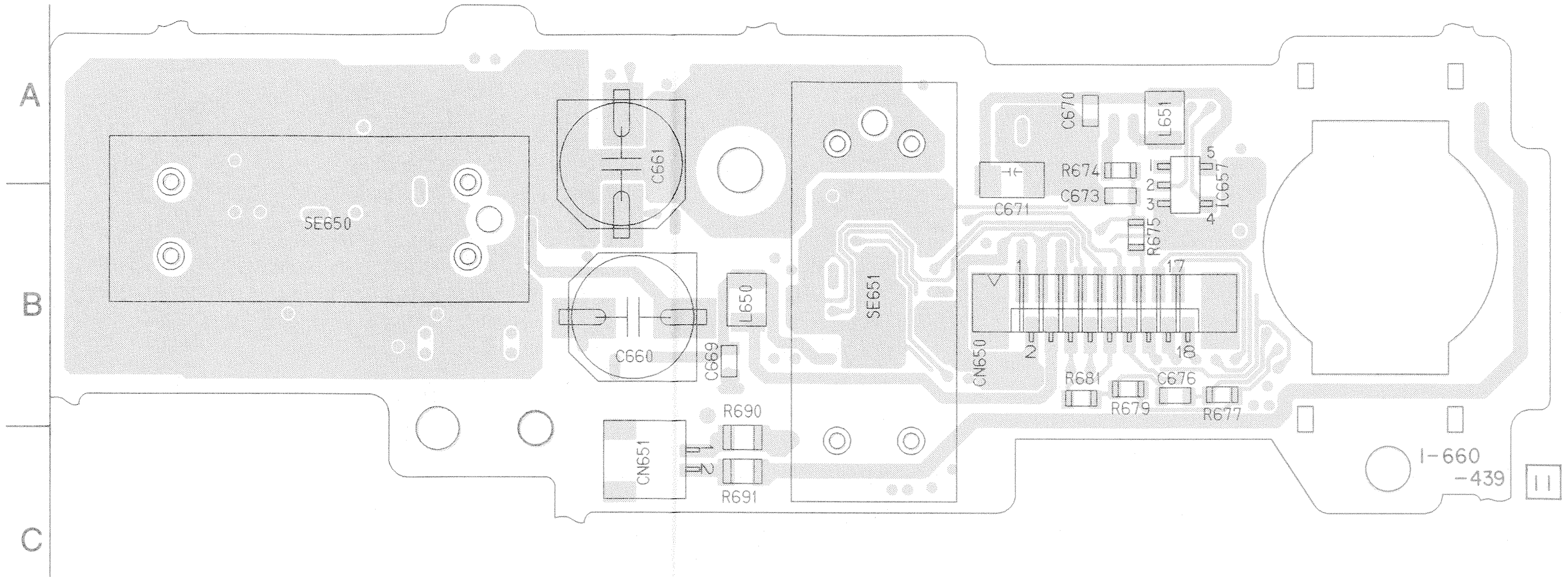
— Ref. No. : TZ-5 Board; 5,000 Series —

TZ-5 BOARD

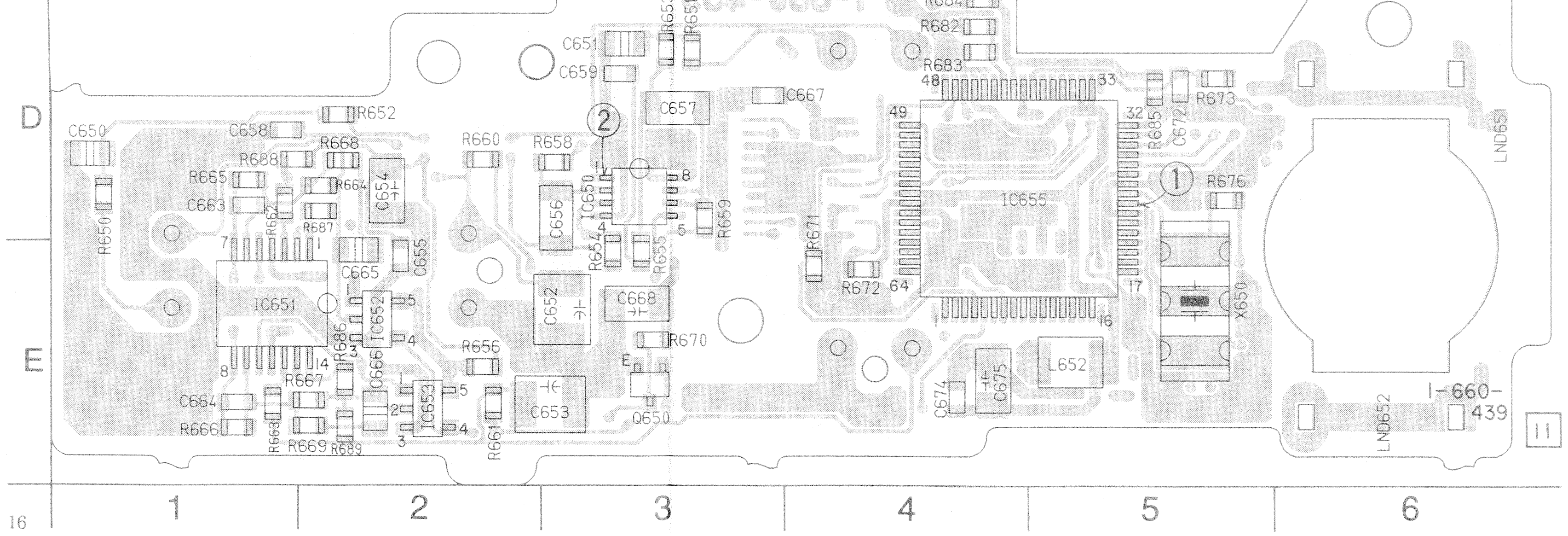
C650	D-1	IC652	E-2	R669	E-2
C651	D-3	IC653	E-3	R670	E-3
C652	E-3	IC655	D-5	R672	E-4
C653	E-3			R673	D-5
C654	D-2	L650	B-3	R674	B-5
C655	E-2	L652	E-5	R675	B-5
C656	D-3			R676	D-5
C657	D-3	Q650	E-3	R682	D-4
C658	D-1			R683	D-4
C659	D-3	R650	D-1	R684	D-4
C660	B-3	R651	D-3	R685	D-5
C661	A-3	R652	D-2	R688	D-1
C663	D-1	R653	D-3	R689	E-2
C664	E-1	R654	E-3		
C665	E-2	R655	E-3	SE650	B-2
C666	E-2	R656	E-2	SE651	B-4
C668	E-3	R658	D-3		
C669	B-3	R659	D-3	X650	E-5
C672	D-5	R660	D-2		
C673	B-5	R661	E-2		
C674	E-4	R662	D-1		
C675	E-4	R663	E-1		
		R664	D-2		
CN650	B-4	R665	D-1		
		R666	E-1		
IC650	D-3	R667	E-2		
IC651	E-1	R668	D-2		


FP-246
(MODE SENSOR)
DD-80P
(POWER)
CD-156
(CCD IMAGER)
VC-167P
(MAIN)
JK-145
(JACK)
VF-102P
(EVF)
TZ-5
(STEADY SHOT)
<TR520E MODEL>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

TZ-5 BOARD (SIDE A)


A
B
C
SE650
C661
C660
C669
L650
SE651
CN650
CN651
R690
R691
C670
L651
C671
R674
C673
R675
IC657
R681
R679
C676
R677
1-660-439
11

TZ-5 BOARD (SIDE B)


D
E
C650
R650
C658
R688
R665
C663
R652
R668
R664
C654
R662
R687
IC651
C665
C655
C664
R666
R663
R669
R689
R667
R686
C666
IC652
IC653
R660
R658
R656
R661
C651
C659
R653
R651
C657
C656
IC650
R654
R655
R659
C652
C668
R670
C653
Q650
C667
R684
R682
R683
IC655
R671
R672
C674
C675
L652
R685
C672
R673
R676
X650
LND651
LND652
1-660-439
11
16
1
2
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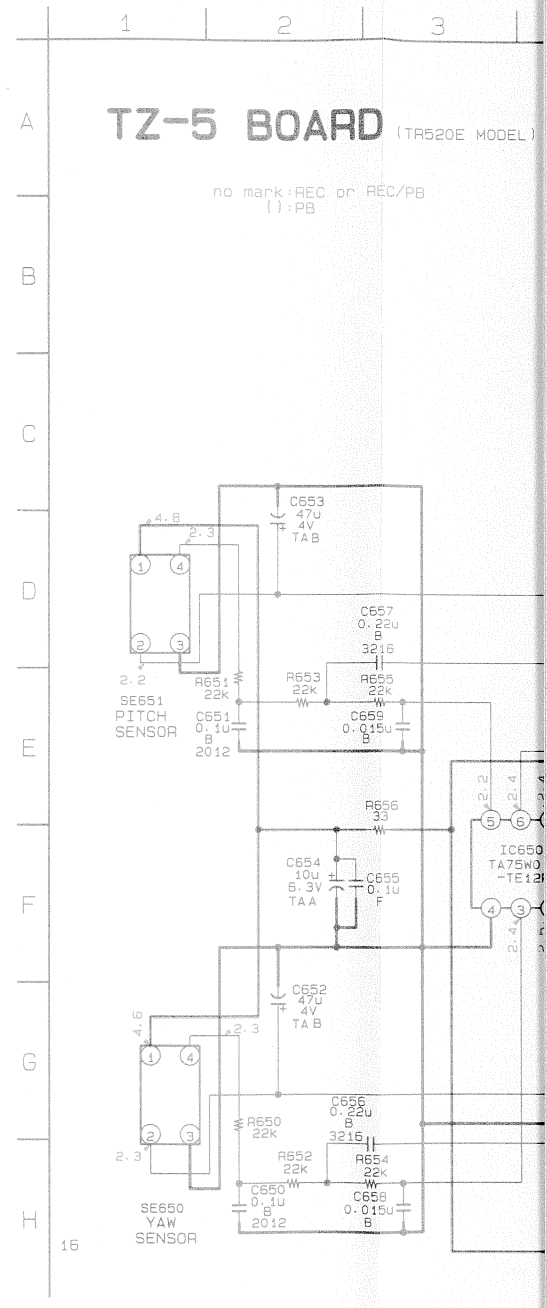
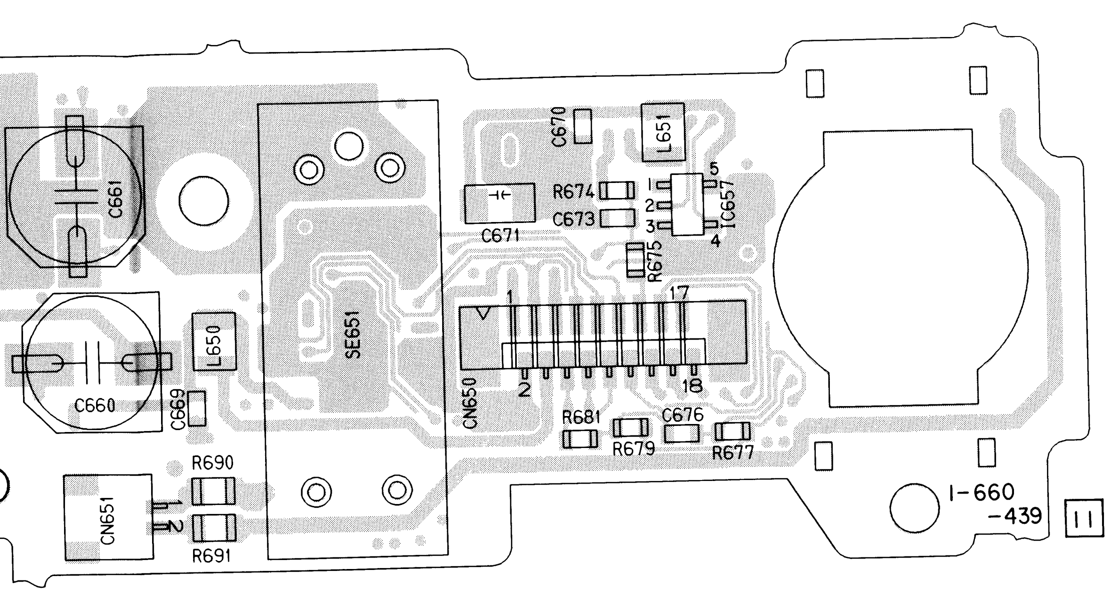
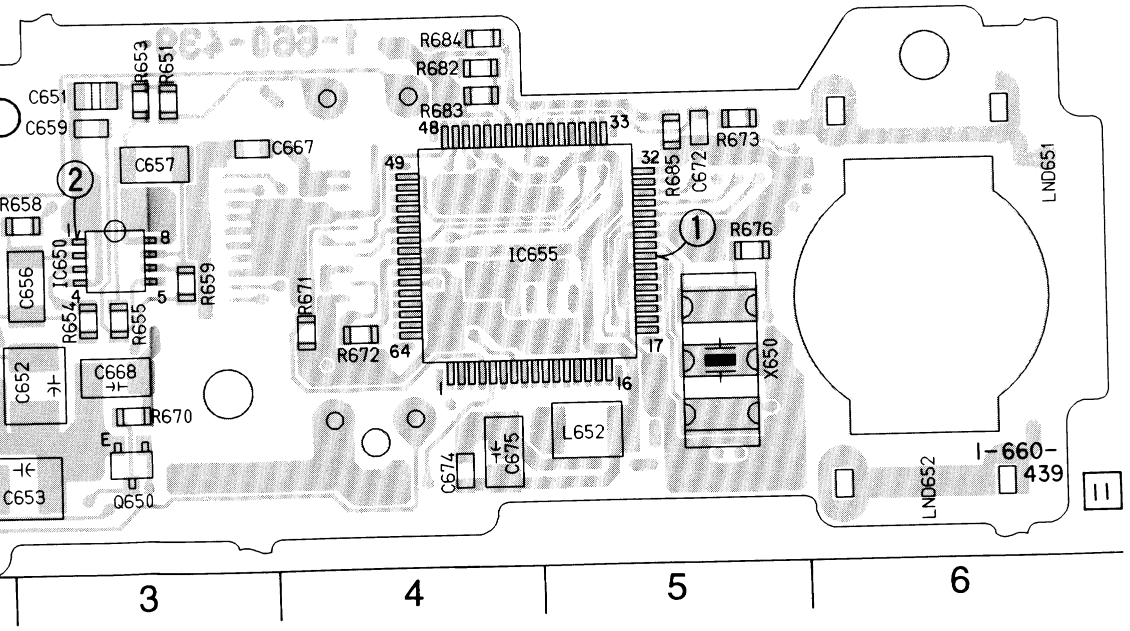
4
5
6


1
2
3
A
B
C
D
E
F
G
H
TZ-5 BOARD (TR520E MODEL)
no mark:REC or REC/PB
( ):PB
C653 47u 4V TAB
SE651 PITCH SENSOR
R651 22k
C651 0.1u B 2012
R653 22k
C657 0.22u B 3216
R655 22k
C659 0.015u B
R656 33
C654 10u 6.3V TAA
C655 0.1u F
IC650 TA75W0 -TE12
C652 47u 4V TAB
SE650 YAW SENSOR
R650 22k
R652 22k
C650 0.1u B 2012
C656 0.22u B 3216
R654 22k
C658 0.015u B
4.8
2.3
2.2
4.6
2.4
16

part printed on this diagram isn't mounted in this model.


C661
C660
C669
L650
R690
R691
CN651
SE651
C670
L651
C671
R674
C673
IC657
R675
CN650
R681
R679
C676
R677
1
17
2
18
5
4
1-660
-439
11


R684
R682
R683
C651
C659
R653
R651
C657
C667
R658
C656
IC650
R654
R655
R659
C652
C668
R670
C653
Q650
R671
R672
IC655
49
48
33
32
64
1
16
17
R685
C672
R673
R676
X650
C674
C675
L652
LND651
LND652
1-660-
439
11
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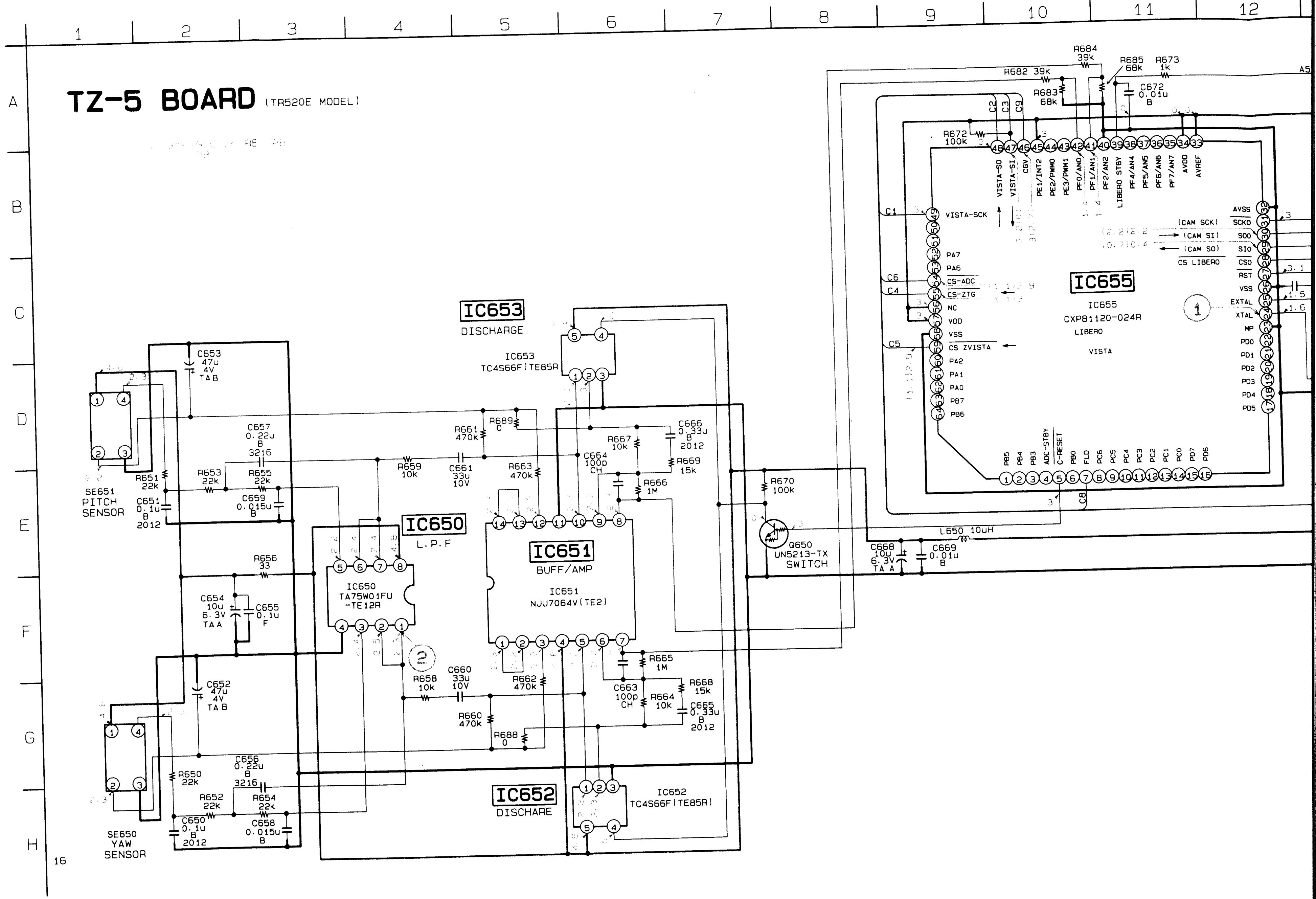
6

TZ-5 BOARD (TR520E MODEL)


1
2
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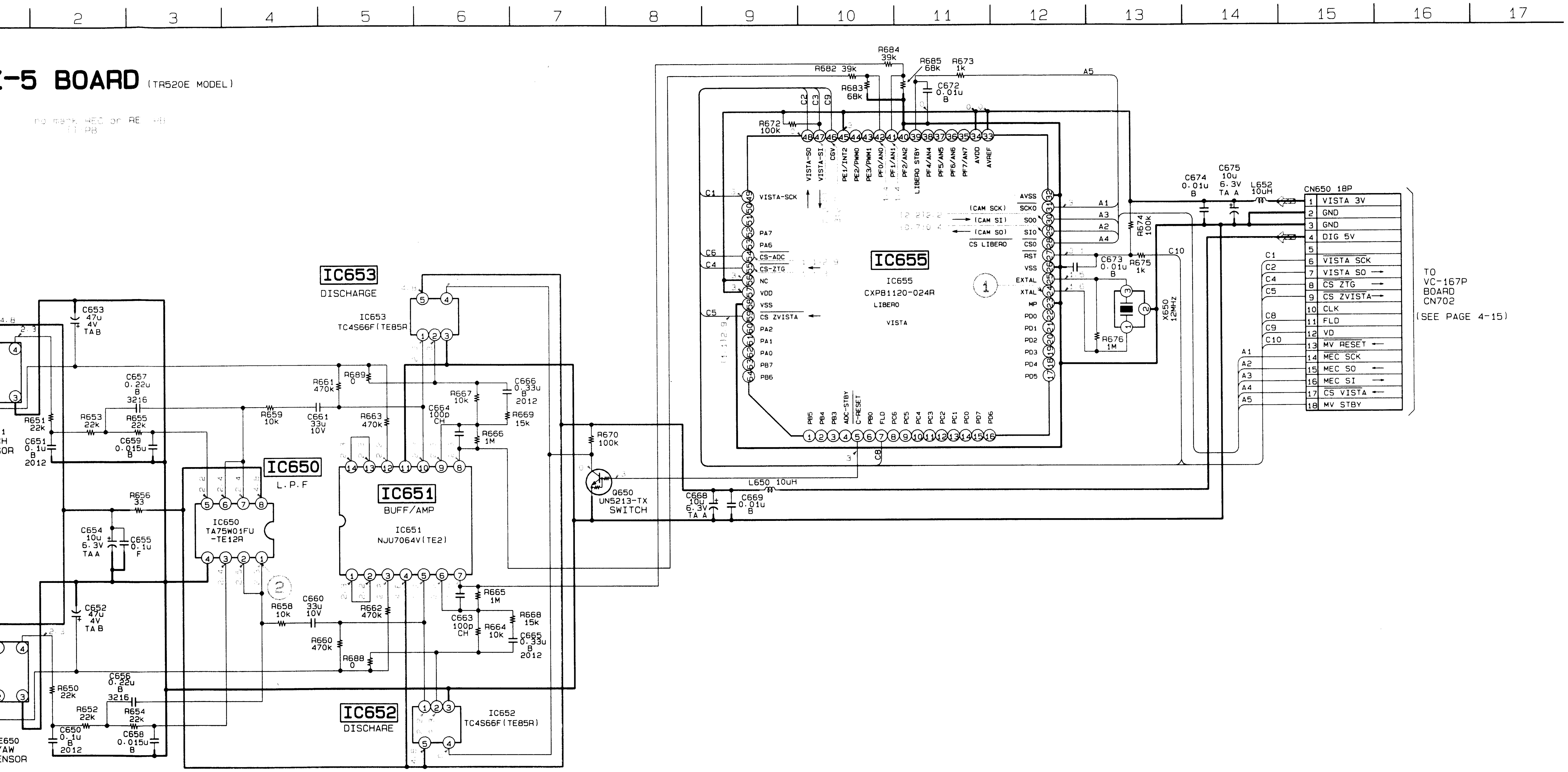
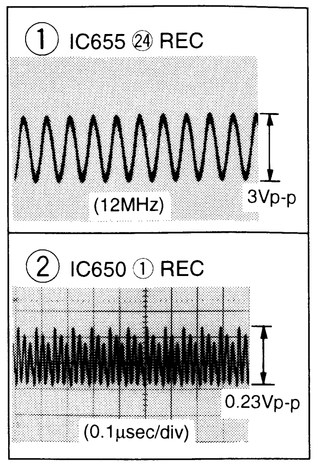
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
IC653
DISCHARGE
IC653
TC4S66F(TE85R)
IC650
L.P.F
IC650
TA75W01FU
-TE12R
IC651
BUFF/AMP
IC651
NJU7064V(TE2)
IC652
DISCHARE
IC652
TC4S66F(TE85R)
IC655
IC655
CXP81120-024R
LIBERO
VISTA
SE651
PITCH
SENSOR
SE650
YAW
SENSOR
Q650
UN5213-TX
SWITCH
C653 47u 4V TAB
C657 0.22u B 3216
R651 22k
R653 22k
R655 22k
C651 0.1u B 2012
C659 0.015u B
R656 33
C654 10u 6.3V TAA
C655 0.1u F
C652 47u 4V TAB
R650 22k
C656 0.22u B 3216
R652 22k
R654 22k
C650 0.1u B 2012
C658 0.015u B
R661 470k
R689 0
R659 10k
C661 33u 10V
R663 470k
C664 100p CH
R667 10k
C666 0.33u B 2012
R669 15k
R666 1M
R658 10k
C660 33u 10V
R662 470k
R660 470k
R688 0
C663 100p CH
R664 10k
R665 1M
R668 15k
C665 0.33u B 2012
R670 100k
C668 10u 6.3V TAA
C669 0.01u B
L650 10uH
R672 100k
R682 39k
R684 39k
R683 68k
R685 68k
R673 1k
C672 0.01u B
C2
C3
C9
C1
C6
C4
C5
C8
VISTA-SO
VISTA-SI
CSV
PE1/INT2
PE2/PWM0
PE3/PWM1
PF0/AN0
PF1/AN1
PF2/AN2
LIBERO STBY
PF4/AN4
PF5/AN5
PF6/AN6
PF7/AN7
AVDD
AVREF
VISTA-SCK
PA7
PA6
CS-ADC
CS-ZTG
NC
VDD
VSS
CS ZVISTA
PA2
PA1
PA0
PB7
PB6
(CAM SCK)
(CAM SI)
(CAM SO)
CS LIBERO
AVSS
SCK0
SO0
SI0
CS0
RST
VSS
EXTAL
XTAL
MP
PD0
PD1
PD2
PD3
PD4
PD5
PB5
PB4
PB3
ADC-STBY
C-RESET
PB0
FLD
PC6
PC5
PC4
PC3
PC2
PC1
PC0
PD7
PD6
A5
16


Z-5 BOARD (TR520E MODEL)
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
IC653
DISCHARGE
IC653
TC4S66F(TE85R)
IC650
L.P.F
IC650
TA75W01FU
-TE12R
IC651
BUFF/AMP
IC651
NJU7064V(TE2)
IC652
DISCHARE
IC652
TC4S66F(TE85R)
IC655
IC655
CXP81120-024R
LIBERO
VISTA
Q650
UN5213-TX
SWITCH
X650
12MHz
CN650 18P
1 VISTA 3V
2 GND
3 GND
4 DIG 5V
5
6 VISTA SCK
7 VISTA SO
8 CS ZTG
9 CS ZVISTA
10 CLK
11 FLD
12 VD
13 MV RESET
14 MEC SCK
15 MEC SO
16 MEC SI
17 CS VISTA
18 MV STBY
TO
VC-167P
BOARD
CN702
(SEE PAGE 4-15)
R684 39k
R682 39k
R685 68k
R673 1k
R683 68k
C672 0.01u B
R672 100k
C674 0.01u B
C675 10u 6.3V TA A
L652 10uH
R674 100k
C673 0.01u B
R675 1k
R676 1M
L650 10uH
C668 10u 6.3V TA A
C669 0.01u B
R670 100k
C653 47u 4V TAB
C657 0.22u B 3216
R651 22k
R653 22k
R655 22k
C651 0.1u B 2012
C659 0.015u B
R656 33
C654 10u 6.3V TA A
C655 0.1u F
C652 47u 4V TAB
R650 22k
C656 0.22u B 3216
R652 22k
R654 22k
C650 0.1u B 2012
C658 0.015u B
R661 470k
R689 0
R659 10k
C661 33u 10V
R663 470k
R667 10k
C666 0.33u B 2012
C664 100p CH
R669 15k
R666 1M
R658 10k
C660 33u 10V
R662 470k
R665 1M
C663 100p CH
R664 10k
R668 15k
C665 0.33u B 2012
R660 470k
R688 0
VISTA-SCK
PA7
PA6
CS-ADC
CS-ZTG
NC
VDD
VSS
CS ZVISTA
PA2
PA1
PA0
PB7
PB6
VISTA-SO
VISTA-SI
CSV
PE1/INT2
PE2/PWM0
PE3/PWM1
PF0/AN0
PF1/AN1
PF2/AN2
LIBERO STBY
PF4/AN4
PF5/AN5
PF6/AN6
PF7/AN7
AVDD
AVREF
AVSS
SCK0
SO0
SI0
CS0
RST
VSS
EXTAL
XTAL
MP
PD0
PD1
PD2
PD3
PD4
PD5
(CAM SCK)
(CAM SI)
(CAM SO)
CS LIBERO
PB5
PB4
PB3
ADC-STBY
C-RESET
PB0
FLD
PC6
PC5
PC4
PC3
PC2
PC1
PC0
PD7
PD6
A1
A2
A3
A4
A5
C1
C2
C3
C4
C5
C6
C8
C9
C10
①
②

TZ-5 BOARD


① IC655 ㉔ REC
(12MHz)
3Vp-p
② IC650 ① REC
0.23Vp-p
(0.1μsec/div)

SECTION 5
REPAIR PARTS LIST

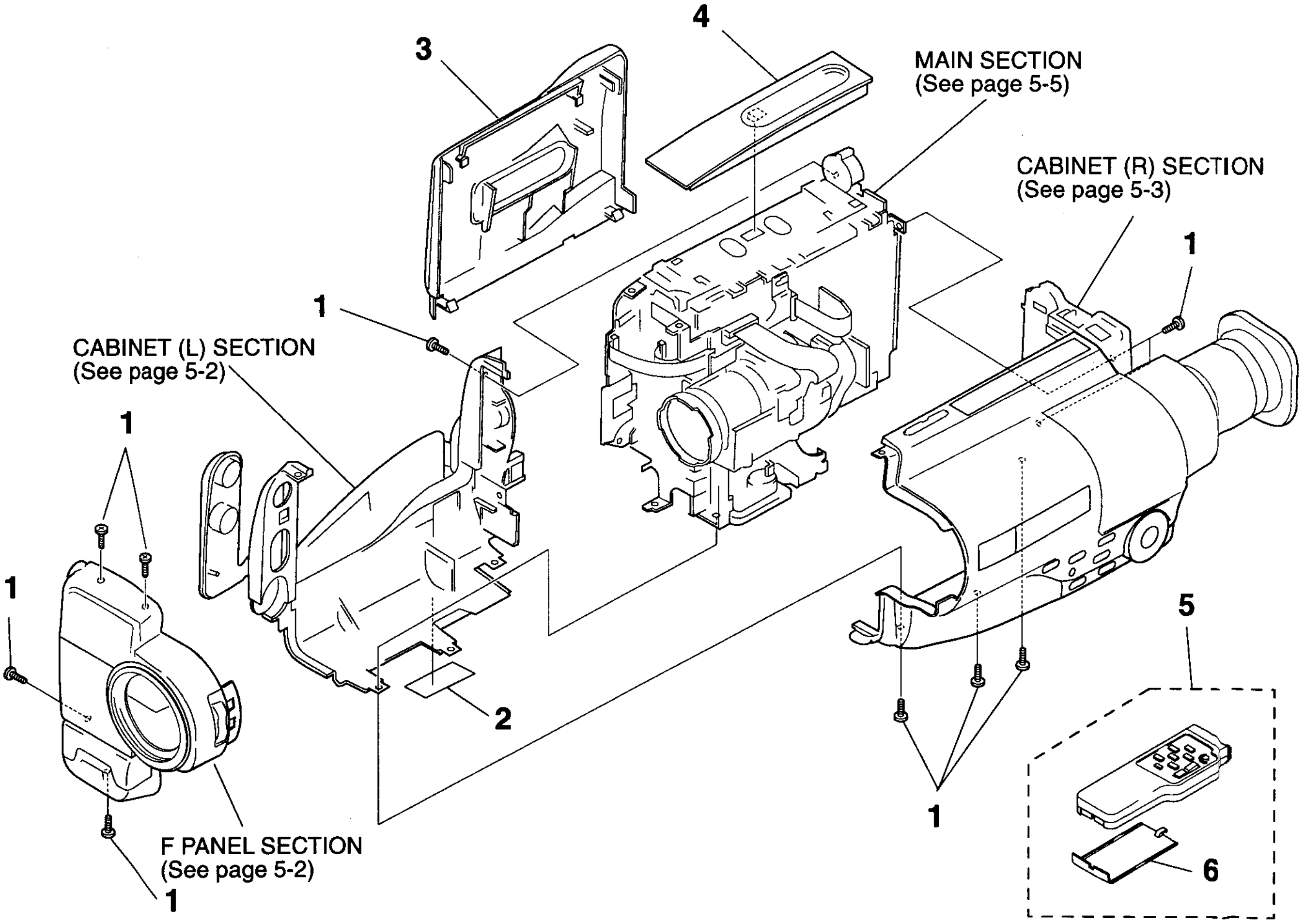
5-1. EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

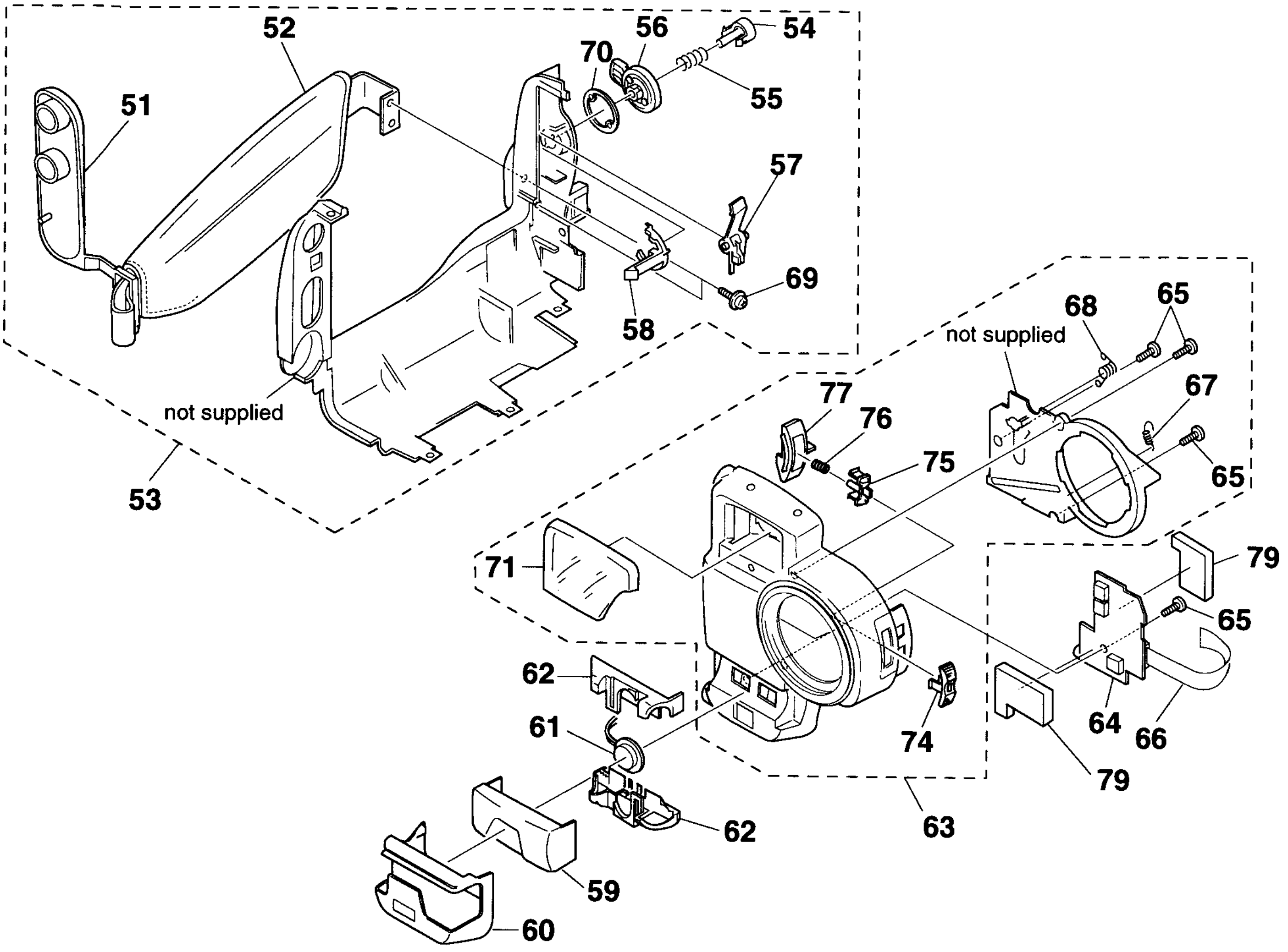
5-1-1. OVERALL SECTION



4
3
MAIN SECTION
(See page 5-5)
CABINET (R) SECTION
(See page 5-3)
1
1
CABINET (L) SECTION
(See page 5-2)
1
1
5
2
1
6
F PANEL SECTION
(See page 5-2)
1

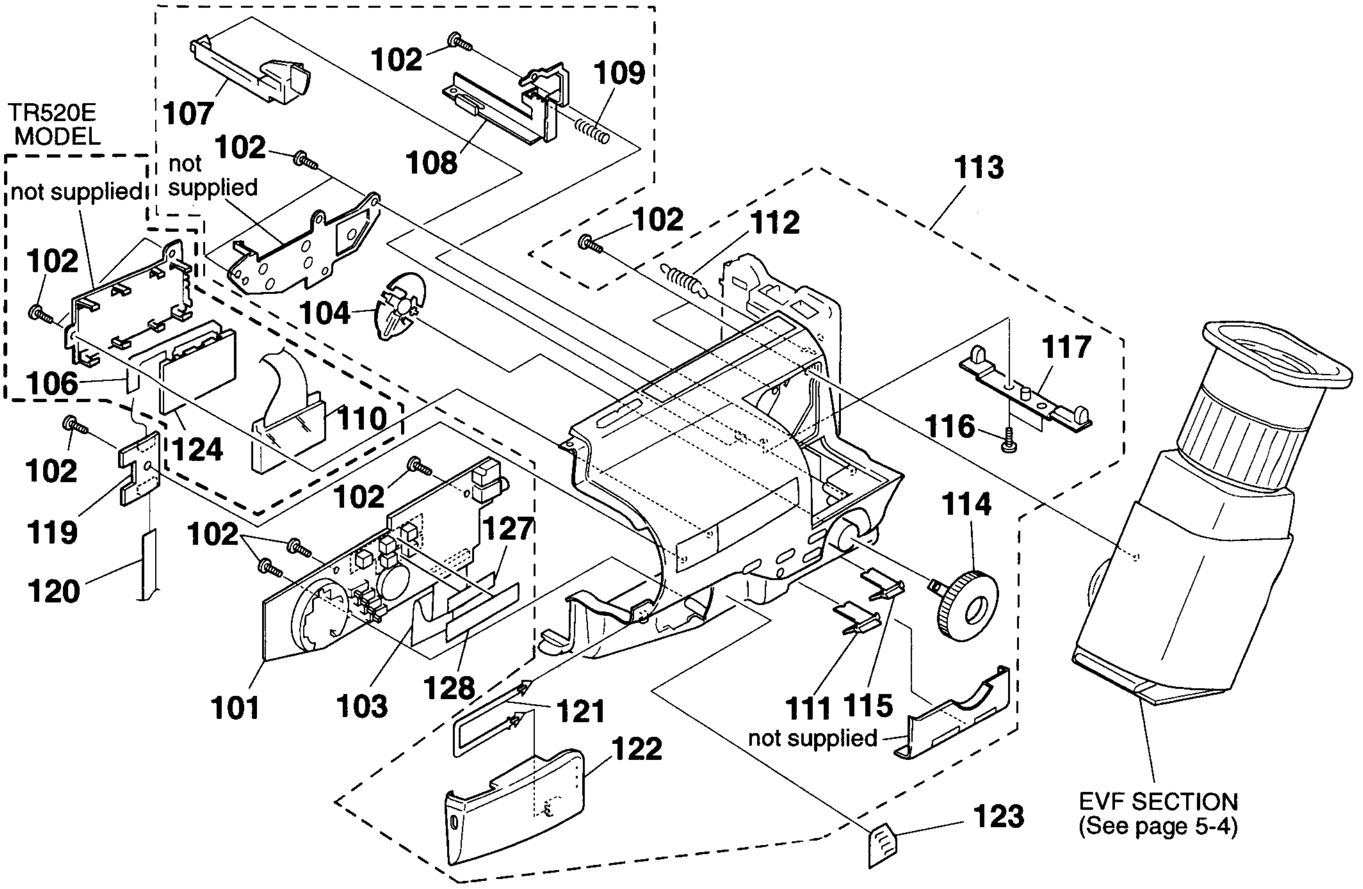
Ref. No.	Part No.	Description	Remarks
1	3-713-786-21	SCREW (M2X3)	
* 2	3-704-235-01	LABEL, CAUTION (TR520E:UK)	
3	X-3945-446-1	LID ASSY, CASSETTE	
4	3-965-896-01	LID, LS	
5	1-473-342-11	REMOTE COMMANDER (RMT-713)	
6	3-958-131-01	COVER, BATTERY REMOCON	

5-1-2. CABINET (L), F PANEL SECTION



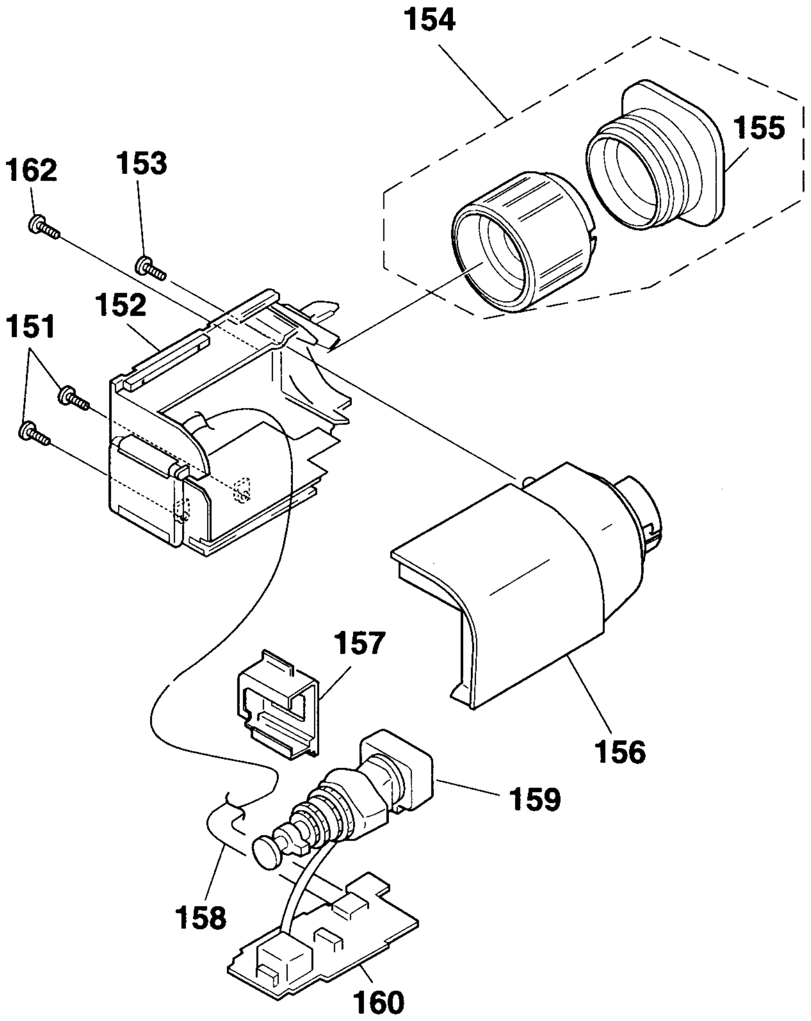
Ref. No.	Part No.	Description	Remarks
51	3-965-888-01	COVER, JACK	
52	3-736-807-01	BELT, GRIP	
53	X-3945-455-1	CABINET (L) ASSY	
54	3-965-844-01	BUTTON, S/S	
55	3-965-830-01	SPRING, COMPRESSION	
56	3-942-985-01	KNOB, STAND-BY	
57	3-965-870-01	PLATE, S/S JOINT	
58	3-965-869-01	HOLDER, KNOB	
59	3-968-958-01	GRILLE, MICROPHONE	
60	X-3945-954-1	COVER ASSY, MICROPHONE	
61	1-542-259-11	MICROPHONE, CAP	
62	3-965-861-01	HOLDER, MICROPHONE	
63	X-3945-953-1	PANEL ASSY, F (TR520E)	
63	X-3946-175-1	PANEL ASSY, F (TR340E)	
64	A-7072-506-A	MA-265 BOARD, COMPLETE	
65	3-719-601-01	SCREW (B2X5), TAPPING	
66	1-775-517-11	CABLE, FLEXIBLE FLAT 8P (TR520E)	
66	1-777-088-11	CABLE, FLEXIBLE FLAT 8P (TR340E)	
67	3-307-378-11	SPRING, TENSION	
68	3-961-823-01	SPRING, L COVER	
70	3-736-364-01	SPRING	
71	3-968-954-01	PLATE, F ORNAMENTAL	
74	3-968-950-01	KNOB, POWER	
75	3-968-952-01	BUTTON, POWER	
76	3-303-973-01	SPRING, COMPRESSION	
77	3-968-951-01	HOLDER, POWER	
* 79	3-970-158-01	CUSHION, MA (TR520E)	
80	3-942-895-01	STOPPER, BELT	

5-1-3. CABINET (R) SECTION


TR520E
MODEL
not supplied
not
supplied
101
102
103
104
106
107
108
109
110
111
112
113
114
115
116
117
119
120
121
122
123
124
127
128
not supplied
EVF SECTION
(See page 5-4)

Ref. No.	Part No.	Description	Remarks
101	A-7092-784-A	CF-43 BOARD, COMPLETE (TR340E)	
101	A-7092-867-A	CF-43 BOARD, COMPLETE (TR520E)	
102	3-719-601-01	SCREW (B2X5), TAPPING	
103	1-775-520-11	CABLE, FLEXIBLE FLAT 45P	
104	3-968-938-01	HOLDER, AE BUTTON	
106	1-660-437-11	FLEXIBLE (FP-427BOARD) (TR520E)	
107	3-965-879-01	SLIDER, BT	
108	3-968-926-01	HOLDER, BT	
109	3-965-846-01	SPRING, COMPRESSION	
110	1-801-215-11	DISPLAY PANEL, LIQUID CRYSTAL (TR520E)	
111	3-968-940-01	BUTTON (3), SLIDE	
112	4-602-490-00	SPRING, TENSION	
113	X-3946-176-1	CABINET (R) ASSY (TR340E)	
113	X-3946-257-1	CABINET (R) ASSY (TR520E)	
114	3-968-936-01	BUTTON, AE	
115	3-968-940-01	BUTTON (3), SLIDE (TR520E)	
116	3-966-178-01	SCREW (1.7)	
117	3-965-854-01	CLAW, BT LOCK	
119	A-7072-507-A	PW-113 BOARD, COMPLETE (TR340E)	
119	A-7072-603-A	PW-113 BOARD, COMPLETE (TR520E)	
120	1-776-866-11	CABLE, FLEXIBLE FLAT 6P	
121	3-965-842-01	HINGE, LITHIUM LID	
122	3-968-932-01	LID, LITHIUM	
123	3-968-927-01	SHEET, SWITCH ORNAMENTAL (TR520E)	
123	3-968-927-11	SHEET, SWITCH ORNAMENTAL (TR340E)	
124	1-517-529-11	LIGHT, BACK (TR520E)	
* 127	3-970-152-01	SHEET, MUFFLE	
* 128	3-970-392-01	SHEET, B MUFFLE	

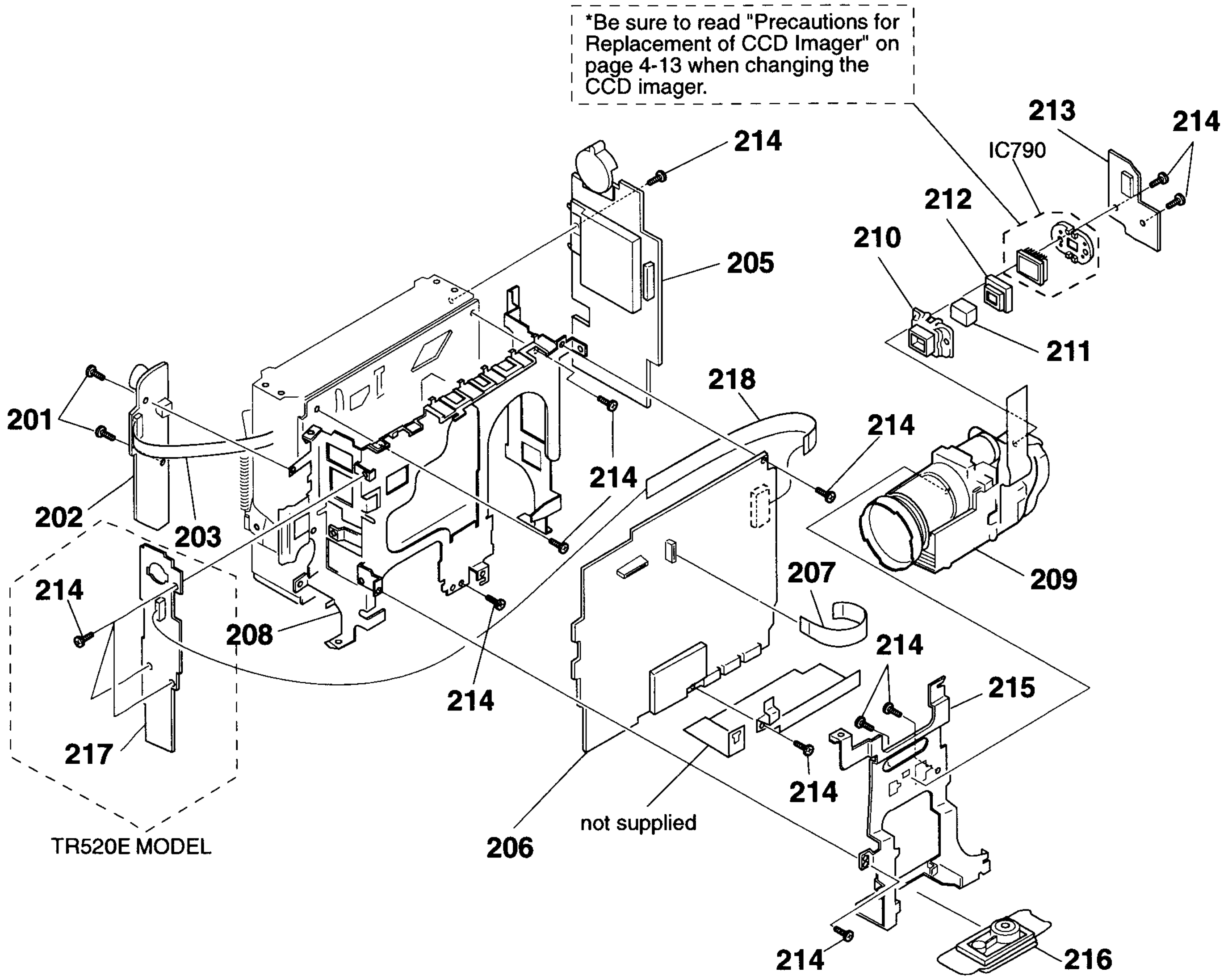
5-1-4. EVF SECTION



Ref. No.	Part No.	Description	Remarks
151	3-719-601-01	SCREW (B2X5), TAPPING	
152	X-3945-456-1	CABINET (L) ASSY, EVF	
153	3-948-339-01	SCREW, TAPPING	
154	X-3945-448-1	FINDER ASSY	
155	3-963-160-01	CUP (DM), EYE	
156	3-965-899-01	CABINET (R), EVF	
157	X-3945-445-1	COVER ASSY, CRT	
158	1-657-866-11	FP-283 FLEXIBLE BOARD	
⚠159	1-452-673-31	CRT ASSY (M01KXX90WB)	
160	A-7072-357-A	VF-102P BOARD, COMPLETE	
162	3-968-334-01	SCREW, F LOCK (TR520E:UK)	

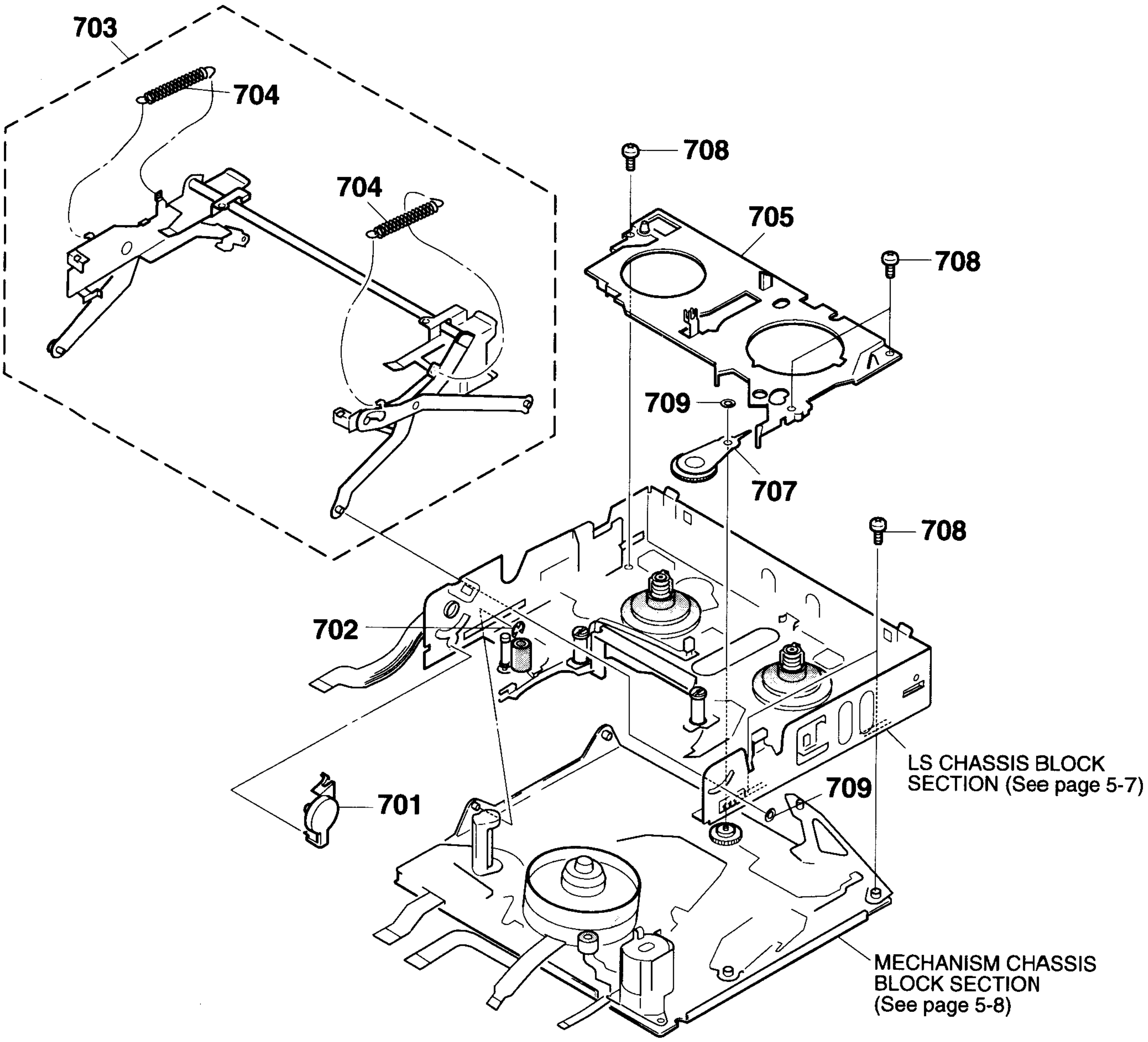
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1-5. MAIN SECTION


*Be sure to read "Precautions for Replacement of CCD Imager" on page 4-13 when changing the CCD imager.

Ref. No.	Part No.	Description	Remarks
201	3-719-601-01	SCREW (B2X5), TAPPING	
202	A-7072-501-A	JK-145 BOARD, COMPLETE	
203	1-660-436-11	FP-403 FLEXIBLE BOARD	
205	A-7092-573-A	DD-80P BOARD, COMPLETE	
206	A-7092-572-A	VC-167P BOARD, COMPLETE (TR340E)	
206	A-7092-866-A	VC-167P BOARD, COMPLETE (TR520E)	
207	1-775-516-11	CABLE, FLEXIBLE FLAT 16P	
* 208	3-965-897-01	FRAME, MD	
209	1-547-739-21	LENS, ZOOM (VCL-5412WB) (TR520E)	
209	1-547-833-11	LENS, ZOOM (VCL-6310WA) (TR340E)	
210	3-946-856-01	ADAPTOR (H), CCD FITTING (TR520E)	
210	3-946-856-11	ADAPTOR (H), CCD FITTING (TR520E)	
210	3-957-990-11	ADAPTOR (C), CCD FITTING (TR340E)	
211	1-547-558-21	FILTER BLOCK, OPTICAL (TR340E)	
211	1-547-735-51	FILTER BLOCK, OPTICAL (TR520E)	
212	3-957-980-11	RUBBER (C), SEAL (TR340E)	
212	3-960-149-01	RUBBER (3), SEAL (TR520E)	
212	3-960-149-11	RUBBER (3), SEAL (TR520E)	
213	A-7072-503-A	CD-156 BOARD, COMPLETE (TR520E)	
213	A-7072-590-A	CD-156 BOARD, COMPLETE (TR340E)	
214	3-947-268-01	2, +B TAPPING P TAIT (TR520E)	
214	3-947-268-11	2X7.5, +B TRPPING P TAIT (TR340E)	
* 215	3-965-898-11	FRAME, LENS	
216	3-965-871-01	SCREW	
217	A-7072-504-A	TZ-5 BOARD, COMPLETE (TR520E)	
218	1-660-435-11	FP-402 FLEXIBLE BOARD (TR520E)	
IC790	A-7030-369-A	CCD BLOCK ASSY (AUTO)(ICX055AK-12) (TR340E)	
IC790	A-7030-495-A	CCD BLOCK ASSY (AUTO)(ICX060AK-41) (TR520E)	

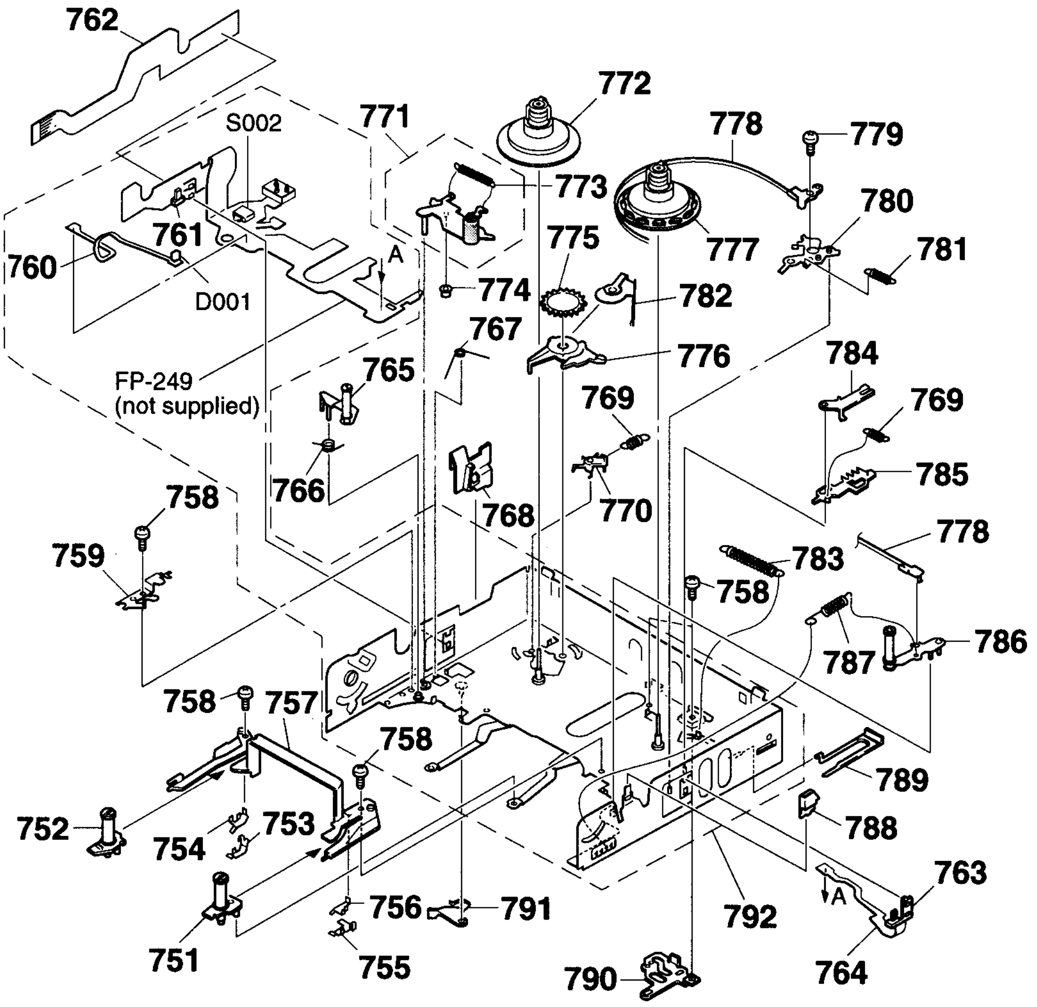
5-1-6. CASSETTE COMPARTMENT BLOCK SECTION


703
704
704
708
705
708
709
707
708
702
LS CHASSIS BLOCK SECTION (See page 5-7)
709
701
MECHANISM CHASSIS BLOCK SECTION (See page 5-8)

Ref. No.	Part No.	Description	Remarks
701	A-7040-421-A	DAMPER ASSY	
702	7-624-102-04	STOP RING 1.5, TYPE -E	
703	X-3945-400-1	CASSETTE COMPARTMENT ASSY	
704	3-965-587-01	SPRING, TENSION	

Ref. No.	Part No.	Description	Remarks
705	3-965-584-01	RETAINER, GOOSENECK	
707	X-3945-399-1	GEAR ASSY, GOOSENECK	
708	3-947-503-01	SCREW (M1.4X2.5)	
709	3-331-007-21	WASHER	

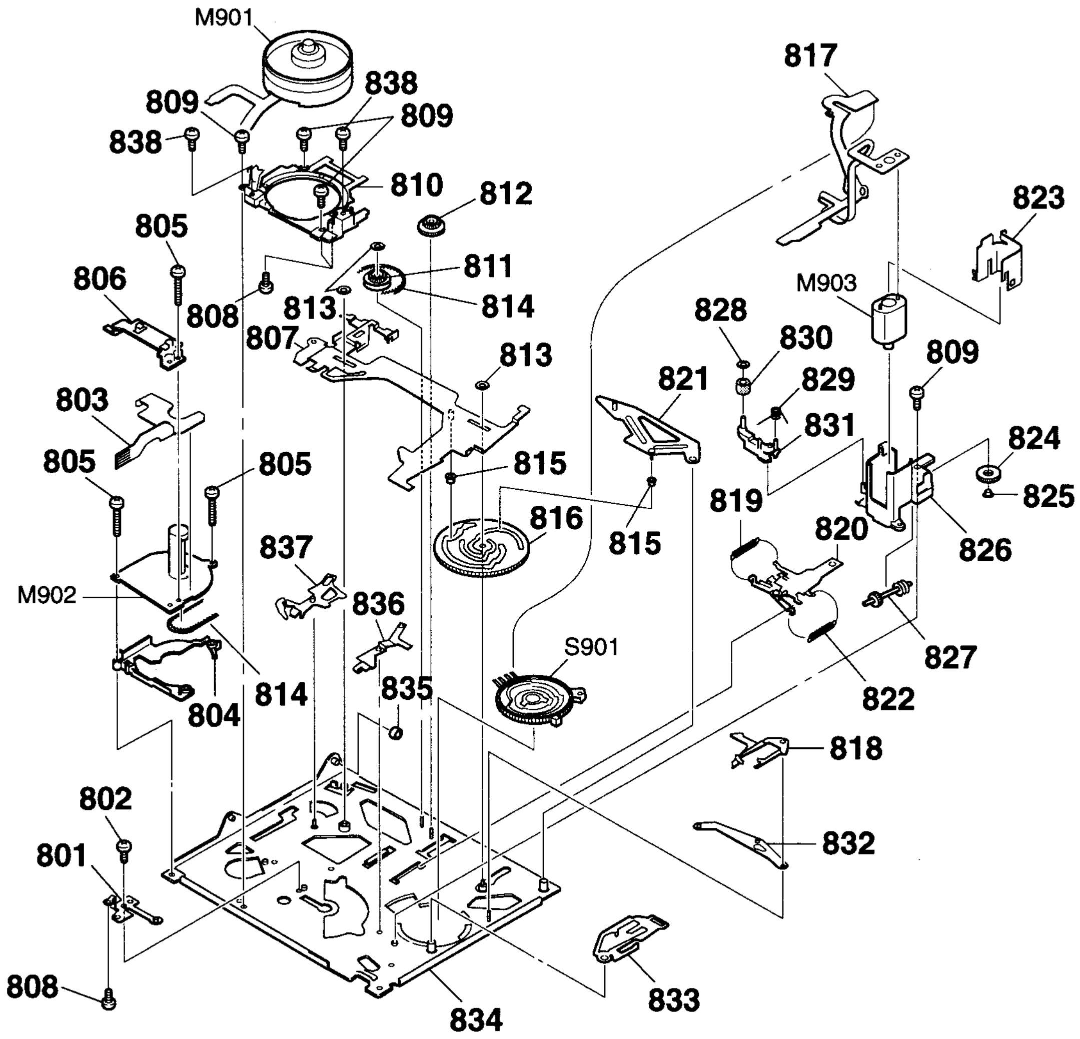
5-1-7. LS CHASSIS BLOCK SECTION


762
S002
771
772
778
779
773
780
761
775
777
781
760
A
D001
774
782
767
776
784
FP-249
(not supplied)
765
769
769
785
758
766
768
770
778
759
783
758
786
787
758
757
758
789
752
754
753
788
763
A
756
791
792
751
755
790
764

Ref. No.	Part No.	Description	Remarks
751	A-7040-419-A	BASE (S) BLOCK ASSY, GUIDE	
752	A-7040-418-A	BASE (T) BLOCK ASSY, GUIDE	
753	3-965-559-01	STOPPER (T)	
754	3-965-557-01	STOPPER (T), GB	
755	3-965-558-01	STOPPER (S)	
756	3-965-556-01	STOPPER (S), GB	
757	3-965-553-01	RAIL, GUIDE	
758	3-947-503-01	SCREW (M1.4X2.5)	
759	3-965-573-01	RETAINER, TG4	
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
761	3-965-552-01	HOLDER (T), SENSOR	
762	1-657-786-11	FP-221 FLEXIBLE BOARD	
763	3-965-551-01	HOLDER (S), SENSOR	
764	1-658-214-11	FP-356 FLEXIBLE BOARD	
765	A-7040-417-A	ARM BLOCK ASSY, TG4	
766	3-965-574-01	SPRING, TORSION	
767	3-965-575-01	SPRING (PINCH), TORSION	
768	3-965-568-01	GUIDE, LOCK	
769	3-965-562-01	SPRING (RATCHET), TENSION	
770	3-965-581-01	RATCHET, T	
771	X-3945-394-1	ARM ASSY, PINCH	
772	X-3945-398-1	DECK ASSY, REEL, T	

Ref. No.	Part No.	Description	Remarks
773	3-965-648-01	SPRING (PINCH), TENSION	
774	3-965-579-01	ROLLER, PINCH PRESS	
775	3-965-563-01	GEAR, T SOFT	
776	3-965-565-01	CLAW, T SOFT	
777	X-3945-397-1	DECK ASSY, REEL, S	
778	X-3945-396-1	BAND ASSY, TENSION REGULATOR	
779	3-945-756-01	SCREW (M1.4X3)	
780	3-965-583-01	ARM, RVS	
781	3-965-580-01	SPRING, TENSION	
782	3-966-384-01	SPRING, T SOFT	
783	3-965-578-01	SPRING, TENSION	
784	3-965-560-01	RATCHET, S	
785	3-965-561-01	PLATE, RELEASE, S RATCHET	
786	X-3945-395-1	ARM ASSY, TG1	
787	3-965-576-01	SPRING (TG1), TENSION	
788	3-965-567-01	LID OPEN	
789	3-965-566-01	COVER, LS GUIDE	
* 790	3-965-577-01	PLATE, CAM, LS	
791	3-965-569-01	ARM, EJ	
792	A-7040-427-A	CHASSIS (S1) ASSY, LS	
D001	8-719-988-42	DIODE GL453S	
S002	1-572-688-11	SWITCH, PUSH (1 KEY) (C.C.LOCK	

5-1-8. MECHANISM CHASSIS BLOCK SECTION


M901
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Ref. No.	Part No.	Description	Remarks
801	3-965-525-01	GROUND, SHAFT	
802	3-965-550-02	SCREW (M1.7X1.6)	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
804	3-965-545-01	SPACER, CAPSTAN	
805	3-965-549-01	SCREW (M1.4 X 6.5)	
806	3-966-349-01	HOLDER, FLEXIBLE	
807	X-3945-387-1	SLIDER ASSY, M	
808	3-965-588-01	SCREW (M1.4)	
809	3-947-503-01	SCREW (M1.4X2.5)	
810	A-7040-416-A	BASE BLOCK ASSY, DRUM	
811	3-965-527-01	GEAR, CHANGE	
812	3-965-544-01	GEAR, RELAY	
813	3-331-007-21	WASHER	
814	3-965-546-01	BELT, TIMING	
815	3-965-533-01	ROLLER, LS	
816	3-965-528-01	GEAR, CAM	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
818	3-965-529-01	PLATE, REGULATOR, TENSION	
819	3-965-536-01	SPRING, TENSION	
820	X-3945-388-1	SLIDER ASSY, GL	
821	3-965-532-01	ARM, LS	
822	3-965-535-01	SPRING, TENSION (SILVER)	
823	3-965-542-01	SHIELD, MOTOR	
824	3-965-539-01	GEAR (A)	
825	3-965-538-01	SLEEVE, MOTOR HOLDER	
826	3-965-540-01	HOLDER, MOTOR	
827	3-965-541-01	SHAFT, WORM	
828	3-321-393-01	WASHER, STOPPER	
829	3-965-724-01	SPRING, TORSION	
830	A-7040-423-A	ROLLER BLOCK ASSY, HC	
831	X-3945-407-1	ARM ASSY, HC ROLLER	
832	3-965-531-01	ARM, GL	
833	3-965-530-01	PLATE (2), REGULATOR, TENSION	
834	X-3945-386-1	CHASSIS ASSY, MECHANICAL	
835	3-965-526-01	ROLLER, LS GUIDE	
836	3-965-547-01	ARM, HC DRIVING	
837	3-965-534-01	PLATE, PRESS, PINCH	
838	3-966-819-01	SCREW +P1.4X3	
M901	A-7048-806-A	DRUM BLOCK ASSY(DGH-0C2A-R)	
M902	8-835-531-01	MOTOR, DC SCE-0601A (CAPSTAN)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
S901	1-762-436-11	SWITCH, ROTARY (ENCODER)	

5-2. ELECTRICAL PARTS LIST

NOTE:

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: µF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: µH
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...

Ref. No.	Part No.	Description	Remarks
	A-7072-590-A	CD-156 BOARD, COMPLETE	(TR340E)
		**********************	
	A-7072-503-A	CD-156 BOARD, COMPLETE	(TR520E)
		**********************	
			(Ref.No.2,000 Series)
		< CAPACITOR >	
C790	1-126-603-11	ELECT CHIP 4.7uF 20% 35V	
C791	1-164-346-11	CERAMIC CHIP 1uF 16V	
C792	1-126-607-11	ELECT CHIP 47uF 20% 4V	
C793	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C794	1-126-603-11	ELECT CHIP 4.7uF 20% 35V	
C795	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	(TR340E)
		< CONNECTOR >	
CN790	1-691-354-21	CONNECTOR, FFC/FPC (ZIF) 16P	
		< IC >	
IC790	A-7030-369-A	CCD BLOCK ASSY (AUTO)(ICX055AK-12)	(TR340E)
IC790	A-7030-495-A	CCD BLOCK ASSY (AUTO)(ICX060AK-41)	(TR520E)
		< COIL >	
L790	1-412-963-11	INDUCTOR 100uH	
		< TRANSISTOR >	
Q790	8-729-117-73	TRANSISTOR 2SC4178	
Q791	8-729-232-86	TRANSISTOR 2SK1875	
		< RESISTOR >	
R791	1-216-840-11	METAL CHIP 39K 5% 1/16W	(TR520E)
R791	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TR340E)
R792	1-216-820-11	METAL CHIP 820 5% 1/16W	(TR520E)
R792	1-216-819-11	METAL CHIP 680 5% 1/16W	(TR340E)
R793	1-218-895-11	METAL CHIP 100K 0.50% 1/16W	(TR520E)
R793	1-216-849-11	METAL CHIP 220K 5% 1/16W	(TR340E)
R794	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R795	1-216-809-11	METAL CHIP 100 5% 1/16W	
R796	1-216-833-11	METAL CHIP 10K 5% 1/16W	
	A-7092-784-A	CF-43 BOARD, COMPLETE	(TR340E)
		**********************	
	A-7092-867-A	CF-43 BOARD, COMPLETE	(TR520E)
		**********************	
			(Ref.No.2,000 Series)
		< HOLDER >	
BH480	1-550-104-11	HOLDER, BATTERY	
		< BUZZER >	
BZ480	1-529-107-11	BUZZER, PIEZOELECTRIC	
		< CAPACITOR >	
C300	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C301	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C302	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C303	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C304	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C305	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C306	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C308	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C310	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C311	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C312	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C313	1-164-156-11	CERAMIC CHIP 0.1uF 25V	(TR520E)
C314	1-135-091-91	TANTAL. CHIP 1uF 20% 16V	(TR520E)
C315	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C316	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C317	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C318	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C319	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C320	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C321	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	

CF-43

Ref. No.	Part No.	Description	Remarks
C323	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C325	1-104-850-11	TANTAL. CHIP 6.8uF 20%	10V
C326	1-165-176-11	CERAMIC CHIP 0.047uF 10%	16V
C327	1-165-176-11	CERAMIC CHIP 0.047uF 10%	16V
C328	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C336	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR520E)
C337	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	(TR520E)
		< CONNECTOR >	
CN480	1-774-054-21	CONNECTOR, FFC/FPC (ZIF) 45P	
CN481	1-691-346-11	CONNECTOR, FFC/FPC (ZIF) 8P	
CN482	1-764-705-11	CONNECTOR, FFC/FPC (LIF) 6P	
CN483	1-766-354-21	CONNECTOR, FFC/FPC 24P	(TR520E)
		< DIODE >	
D300	8-719-404-49	DIODE MA111	
D301	8-719-027-50	DIODE MA142WK	
D303	8-719-052-33	DIODE MAZV082DFL	
D304	8-719-052-33	DIODE MAZV082DFL	
D312	8-719-052-33	DIODE MAZV082DFL	
D314	8-719-404-49	DIODE MA111	(TR520E)
D315	8-719-404-49	DIODE MA111	(TR520E)
⚠D316	8-719-027-76	DIODE 1SS357-TPH3	
D317	8-719-404-49	DIODE MA111	
D318	8-719-404-49	DIODE MA111	(TR520E)
D321	8-719-404-49	DIODE MA111	
D323	8-719-404-49	DIODE MA111	
D324	8-719-420-14	DIODE MA8082-M	
D325	8-719-052-33	DIODE MAZV082DFL	
D327	8-719-420-14	DIODE MA8082-M	
D328	8-719-420-14	DIODE MA8082-M	
D331	8-719-027-48	DIODE MA142WA	(TR520E)
D334	8-719-420-14	DIODE MA8082-M	
D335	8-719-404-49	DIODE MA111	
D480	8-719-033-72	DIODE CL-181UR-C-TS	
		< FILTER >	
FL300	1-411-527-21	COIL, OSC	
		< IC >	
IC301	8-759-298-10	IC S-8423NFS-T2	
IC302	8-759-059-05	IC TL1596CPW	
IC303	8-759-393-53	IC MB89082PFV-G-109-BND	
		< JACK >	
J480	1-565-276-21	JACK, ULTRA SMALL 1P (LANC)	
		< COIL >	
L300	1-414-078-11	INDUCTOR 10uH	
		< IC LINK >	
⚠PS301	1-576-122-21	LINK, IC 400mA	

Ref. No.	Part No.	Description	Remarks
		< TRANSISTOR >	
Q300	8-729-402-84	TRANSISTOR XN4601	(TR520E)
Q301	8-729-823-16	TRANSISTOR 2SC4555-5.6.7	(TR520E)
Q302	8-729-032-00	TRANSISTOR 2SJ381-TD	(TR520E)
Q303	8-729-402-81	TRANSISTOR XN4501	(TR520E)
Q304	8-729-015-76	TRANSISTOR UN5211-TX	(TR520E)
Q305	8-729-015-76	TRANSISTOR UN5211	
Q309	8-729-402-42	TRANSISTOR UN5213	(TR520E)
Q311	8-729-807-86	TRANSISTOR 2SB1295-UL5	(TR520E)
		< RESISTOR >	
R300	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R301	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R303	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R304	1-216-817-11	METAL CHIP 470 5% 1/16W	
R305	1-216-864-11	METAL CHIP 0 5% 1/16W	
R306	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R307	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R308	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R309	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R310	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R311	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R312	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R313	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R314	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R315	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R316	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R317	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R318	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R319	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R320	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R321	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R322	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R323	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R324	1-216-864-11	METAL CHIP 0 5% 1/16W	
R325	1-216-864-11	METAL CHIP 0 5% 1/16W	
R326	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R327	1-216-864-11	METAL CHIP 0 5% 1/16W	
R328	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR520E)
R329	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TR520E)
R330	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR520E)
R331	1-216-864-11	METAL CHIP 0 5% 1/16W	
R332	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR340E)
R333	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R334	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R335	1-216-817-11	METAL CHIP 470 5% 1/16W	
R336	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TR520E)
R337	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TR520E)
R338	1-216-857-11	METAL CHIP 1M 5% 1/16W	(TR520E)
R339	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TR520E)
R340	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TR520E)

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description				Remarks
R342	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R343	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R345	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R346	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R347	1-216-833-11	METAL CHIP	10K	5%	1/16W	(TR520E)
R348	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TR520E)
R350	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R351	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R352	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R353	1-216-864-11	METAL CHIP	0	5%	1/16W	
R354	1-216-864-11	METAL CHIP	0	5%	1/16W	
R355	1-216-864-11	METAL CHIP	0	5%	1/16W	
R356	1-216-864-11	METAL CHIP	0	5%	1/16W	
R357	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R358	1-216-864-11	METAL CHIP	0	5%	1/16W	
R359	1-216-809-11	METAL CHIP	100	5%	1/16W	
R362	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R364	1-216-864-11	METAL CHIP	0	5%	1/16W	
R365	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR520E)
R366	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R367	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R368	1-216-809-11	METAL CHIP	100	5%	1/16W	
R370	1-216-864-11	METAL CHIP	0	5%	1/16W	
R371	1-216-864-11	METAL CHIP	0	5%	1/16W	
R372	1-216-864-11	METAL CHIP	0	5%	1/16W	
R373	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R374	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R375	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R376	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R377	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R378	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R379	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R380	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R381	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R384	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R386	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R387	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R389	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R390	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R392	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R393	1-216-809-11	METAL CHIP	100	5%	1/16W	
R394	1-218-290-11	METAL GLAZE	6.2K	5%	1/16W	
R395	1-216-833-11	METAL CHIP	10K	5%	1/16W	(TR520E)
R396	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R397	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R398	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R399	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R480	1-216-806-11	METAL GLAZE	56	5%	1/16W	(TR520E)
R482	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R483	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R484	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R485	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR520E)
R490	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R494	1-216-864-11	METAL CHIP	0	5%	1/16W	
R495	1-216-864-11	METAL CHIP	0	5%	1/16W	
R496	1-216-797-11	METAL CHIP	10	5%	1/16W	
R497	1-216-864-11	METAL CHIP	0	5%	1/16W	
R499	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R500	1-216-864-11	METAL CHIP	0	5%	1/16W	

< SWITCH >

Ref. No.	Part No.	Description		Remarks
S300	1-553-977-71	SWITCH, SLIDE	(ZOOM)	(TR520E)
S301	1-762-333-21	SWITCH, TACTILE	(TITLE)	
S480	1-762-333-21	SWITCH, TACTILE	(DATE(+))	
S481	1-762-333-21	SWITCH, TACTILE	(TIME(NEXT))	
S482	1-762-333-21	SWITCH, TACTILE	(COUNTER RESET)	
S483	1-553-977-71	SWITCH, SLIDE	(REC MODE)	
S484	1-762-333-21	SWITCH, TACTILE	(BACK LIGHT)	
S485	1-570-113-11	SWITCH, SLIDE	(START/STOP MODE)	
S487	1-553-977-71	SWITCH, SLIDE	(COMMANDER)	
S488	1-553-977-71	SWITCH, SLIDE	(BEEP)	
S489	1-762-442-21	SWITCH, ROTARY	(PROGRAM AE)	

< VIBRATOR >

Ref. No.	Part No.	Description
X302	1-579-463-11	VIBRATOR, CRYSTAL 32KHz
XTL301	1-579-369-21	VIBRATOR 10MHz

A-7092-573-A DD-80P BOARD, COMPLETE
****

(Ref.No.1,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remarks
C001	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C002	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C003	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C004	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C005	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C006	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C007	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C008	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C009	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C010	1-128-004-11	ELECT CHIP	10uF	20%	16V
C011	1-128-004-11	ELECT CHIP	10uF	20%	16V
C012	1-128-004-11	ELECT CHIP	10uF	20%	16V
C013	1-128-065-11	ELECT	68uF	20%	10V
C014	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C016	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C018	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C019	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C022	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C024	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C025	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V

. No.	Part No.	Description	Remarks		
R342	1-216-845-11	METAL CHIP	100K	5%	1/16W
R343	1-216-853-11	METAL CHIP	470K	5%	1/16W
R345	1-216-833-11	METAL CHIP	10K	5%	1/16W
R346	1-216-821-11	METAL CHIP	1K	5%	1/16W
R347	1-216-833-11	METAL CHIP	10K	5%	1/16W (TR520E)
R348	1-216-821-11	METAL CHIP	1K	5%	1/16W (TR520E)
R350	1-216-833-11	METAL CHIP	10K	5%	1/16W
R351	1-216-821-11	METAL CHIP	1K	5%	1/16W
R352	1-216-821-11	METAL CHIP	1K	5%	1/16W
R353	1-216-864-11	METAL CHIP	0	5%	1/16W
R354	1-216-864-11	METAL CHIP	0	5%	1/16W
R355	1-216-864-11	METAL CHIP	0	5%	1/16W
R356	1-216-864-11	METAL CHIP	0	5%	1/16W
R357	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R358	1-216-864-11	METAL CHIP	0	5%	1/16W
R359	1-216-809-11	METAL CHIP	100	5%	1/16W
R362	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R364	1-216-864-11	METAL CHIP	0	5%	1/16W
R365	1-216-864-11	METAL CHIP	0	5%	1/16W (TR520E)
R366	1-216-853-11	METAL CHIP	470K	5%	1/16W
R367	1-216-853-11	METAL CHIP	470K	5%	1/16W
R368	1-216-809-11	METAL CHIP	100	5%	1/16W
R370	1-216-864-11	METAL CHIP	0	5%	1/16W
R371	1-216-864-11	METAL CHIP	0	5%	1/16W
R372	1-216-864-11	METAL CHIP	0	5%	1/16W
R373	1-216-821-11	METAL CHIP	1K	5%	1/16W
R374	1-216-821-11	METAL CHIP	1K	5%	1/16W
R375	1-216-853-11	METAL CHIP	470K	5%	1/16W
R376	1-216-821-11	METAL CHIP	1K	5%	1/16W
R377	1-216-821-11	METAL CHIP	1K	5%	1/16W
R378	1-216-821-11	METAL CHIP	1K	5%	1/16W
R379	1-216-821-11	METAL CHIP	1K	5%	1/16W
R380	1-216-821-11	METAL CHIP	1K	5%	1/16W
R381	1-216-821-11	METAL CHIP	1K	5%	1/16W
R384	1-216-833-11	METAL CHIP	10K	5%	1/16W
R386	1-216-833-11	METAL CHIP	10K	5%	1/16W
R387	1-216-833-11	METAL CHIP	10K	5%	1/16W
R389	1-216-849-11	METAL CHIP	220K	5%	1/16W
R390	1-216-849-11	METAL CHIP	220K	5%	1/16W
R392	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R393	1-216-809-11	METAL CHIP	100	5%	1/16W
R394	1-218-290-11	METAL GLAZE	6.2K	5%	1/16W
R395	1-216-833-11	METAL CHIP	10K	5%	1/16W (TR520E)
R396	1-216-821-11	METAL CHIP	1K	5%	1/16W
397	1-216-845-11	METAL CHIP	100K	5%	1/16W
398	1-216-845-11	METAL CHIP	100K	5%	1/16W
99	1-216-851-11	METAL CHIP	330K	5%	1/16W
30	1-216-806-11	METAL GLAZE	56	5%	1/16W (TR520E)
2	1-216-841-11	METAL CHIP	47K	5%	1/16W
3	1-216-841-11	METAL CHIP	47K	5%	1/16W

Ref. No.	Part No.	Description	Remarks		
R484	1-216-841-11	METAL CHIP	47K	5%	1/16W
R485	1-216-864-11	METAL CHIP	0	5%	1/16W (TR520E)
R490	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R494	1-216-864-11	METAL CHIP	0	5%	1/16W
R495	1-216-864-11	METAL CHIP	0	5%	1/16W
R496	1-216-797-11	METAL CHIP	10	5%	1/16W
R497	1-216-864-11	METAL CHIP	0	5%	1/16W
R499	1-216-836-11	METAL CHIP	18K	5%	1/16W
R500	1-216-864-11	METAL CHIP	0	5%	1/16W

< SWITCH >

S300	1-553-977-71	SWITCH, SLIDE	(ZOOM) (TR520E)
S301	1-762-333-21	SWITCH, TACTILE	(TITLE)
S480	1-762-333-21	SWITCH, TACTILE	(DATE(+))
S481	1-762-333-21	SWITCH, TACTILE	(TIME(NEXT))
S482	1-762-333-21	SWITCH, TACTILE	(COUNTER RESET)
S483	1-553-977-71	SWITCH, SLIDE	(REC MODE)
S484	1-762-333-21	SWITCH, TACTILE	(BACK LIGHT)
S485	1-570-113-11	SWITCH, SLIDE	(START/STOP MODE)
S487	1-553-977-71	SWITCH, SLIDE	(COMMANDER)
S488	1-553-977-71	SWITCH, SLIDE	(BEEP)
S489	1-762-442-21	SWITCH, ROTARY	(PROGRAM AE)

< VIBRATOR >

X302	1-579-463-11	VIBRATOR, CRYSTAL 32KHz
XTL301	1-579-369-21	VIBRATOR 10MHz

A-7092-573-A DD-80P BOARD, COMPLETE
****

(Ref.No.1,000 Series)

< CAPACITOR >

C001	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C002	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C003	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C004	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C005	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C006	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C007	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C008	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C009	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C010	1-128-004-11	ELECT CHIP	10uF	20%	16V
C011	1-128-004-11	ELECT CHIP	10uF	20%	16V
C012	1-128-004-11	ELECT CHIP	10uF	20%	16V
C013	1-128-065-11	ELECT	68uF	20%	10V
C014	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C016	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C018	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C019	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C022	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C024	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C025	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V

Ref. No.	Part No.	Description	Remarks		
C026	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C027	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C028	1-165-178-11	CERAMIC CHIP	6.8uF		16V
C029	1-165-178-11	CERAMIC CHIP	6.8uF		16V
C030	1-165-178-11	CERAMIC CHIP	6.8uF		16V
C031	1-115-170-11	TANTALUM	4.7uF	20%	10V
C032	1-115-170-11	TANTALUM	4.7uF	20%	10V
C033	1-115-169-11	TANTALUM	10uF	20%	6.3V
C034	1-115-170-11	TANTALUM	4.7uF	20%	10V
C035	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C036	1-115-169-11	TANTALUM	10uF	20%	6.3V
C037	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C038	1-128-004-11	ELECT CHIP	10uF	20%	16V
C039	1-128-004-11	ELECT CHIP	10uF	20%	16V
C040	1-128-004-11	ELECT CHIP	10uF	20%	16V
C041	1-128-004-11	ELECT CHIP	10uF	20%	16V
C042	1-128-004-11	ELECT CHIP	10uF	20%	16V
C043	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C044	1-128-004-11	ELECT CHIP	10uF	20%	16V
C045	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C046	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C047	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C048	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V

< CONNECTOR >

Ref. No.	Part No.	Description
* CN003	1-691-935-11	CONNECTOR, BOARD TO BOARD 38P

< DIODE >

Ref. No.	Part No.	Description	
D001	8-719-989-33	DIODE	FC806

< IC >

Ref. No.	Part No.	Description	
IC001	8-759-350-29	IC	SN104213PM-T6

< JACK >

Ref. No.	Part No.	Description
J001	1-537-241-11	TERMINAL BOARD (BATTERY)

< COIL >

Ref. No.	Part No.	Description
L002	1-411-460-21	COEL, CHOKE 10uH
L003	1-411-460-21	COEL, CHOKE 10uH
L004	1-411-460-21	COEL, CHOKE 10uH
L005	1-409-556-11	COIL, CHOKE 47uH
L006	1-409-556-11	COIL, CHOKE 47uH
L007	1-424-674-11	COIL, CHOKE 22uH
L008	1-409-556-11	COIL, CHOKE 47uH
L009	1-424-674-11	COIL, CHOKE 22uH
L010	1-412-056-11	INDUCTOR CHIP 4.7uH
L011	1-412-056-11	INDUCTOR CHIP 4.7uH
L012	1-412-056-11	INDUCTOR CHIP 4.7uH
L013	1-412-056-11	INDUCTOR CHIP 4.7uH
L014	1-412-066-21	INDUCTOR CHIP 220uH
L015	1-412-066-21	INDUCTOR CHIP 220uH
L016	1-412-056-11	INDUCTOR CHIP 4.7uH
L017	1-412-056-11	INDUCTOR CHIP 4.7uH
L018	1-412-056-11	INDUCTOR CHIP 4.7uH

< IC LINK >

Ref. No.	Part No.	Description
⚠PS002	1-533-284-11	LINK, CHIP IC
⚠PS003	1-533-284-11	LINK, CHIP IC
⚠PS004	1-533-284-11	LINK, CHIP IC

< TRANSISTOR >

Ref. No.	Part No.	Description	
Q001	8-729-033-14	TRANSISTOR	FP107-TL
Q002	8-729-033-14	TRANSISTOR	FP107-TL
Q003	8-729-804-41	TRANSISTOR	2SB1122-S
Q004	8-729-033-14	TRANSISTOR	FP107-TL
Q005	8-729-033-14	TRANSISTOR	FP107-TL
Q006	8-729-033-14	TRANSISTOR	FP107-TL
Q007	8-729-030-75	TRANSISTOR	2SK2316-TD
Q008	8-729-402-42	TRANSISTOR	UN5213

< RESISTOR >

Ref. No.	Part No.	Description	Remarks		
R001	1-216-841-11	METAL CHIP	47K	5%	1/16W
R002	1-216-835-11	METAL CHIP	15K	5%	1/16W
R003	1-216-837-11	METAL CHIP	22K	5%	1/16W
R004	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R005	1-216-839-11	METAL CHIP	33K	5%	1/16W
R006	1-216-837-11	METAL CHIP	22K	5%	1/16W
R007	1-216-821-11	METAL CHIP	1K	5%	1/16W
R008	1-216-813-11	METAL CHIP	220	5%	1/16W
R009	1-216-841-11	METAL CHIP	47K	5%	1/16W
R010	1-216-845-11	METAL CHIP	100K	5%	1/16W
R014	1-216-821-11	METAL CHIP	1K	5%	1/16W
R015	1-216-819-11	METAL CHIP	680	5%	1/16W
R016	1-216-864-11	METAL CHIP	0	5%	1/16W
R017	1-216-833-11	METAL CHIP	10K	5%	1/16W
R018	1-216-833-11	METAL CHIP	10K	5%	1/16W
R019	1-216-833-11	METAL CHIP	10K	5%	1/16W
R020	1-216-835-11	METAL CHIP	15K	5%	1/16W
R021	1-216-839-11	METAL CHIP	33K	5%	1/16W
R022	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R023	1-216-797-11	METAL CHIP	10	5%	1/16W
R024	1-216-837-11	METAL CHIP	22K	5%	1/16W
R025	1-216-841-11	METAL CHIP	47K	5%	1/16W
R026	1-216-864-11	METAL CHIP	0	5%	1/16W
R027	1-216-833-11	METAL CHIP	10K	5%	1/16W
R033	1-216-833-11	METAL CHIP	10K	5%	1/16W

< SWITCH >

Ref. No.	Part No.	Description
S001	1-572-688-11	SWITCH, PUSH (1 KEY) (START/STOP)
S002	1-572-467-21	SWITCH, PUSH (1 KEY) (EJECT)
S003	1-762-441-11	SWITCH, ROTARY (ZOOM SW)
S004	1-572-688-11	SWITCH, PUSH (1 KEY) (STANDBY)

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
		< TRANSFORMER >	
T001	1-429-164-21	TRANSFORMER, DC/DC CONVERTER	

FP-249 BOARD
****

(Ref.No.5,000 Series)

Ref. No.	Part No.	Description	Remarks
	1-658-214-11	FP-356 FLEXIBLE BOARD	
	3-965-551-01	HOLDER (S), SENSOR	
	3-965-552-01	HOLDER (T), SENSOR	
		< HOLE ELEMENT >	
H001	8-719-033-37	ELEMENT, HALL HW-105C	
H002	8-719-033-37	ELEMENT, HALL HW-105C	
		< TRANSISTOR >	
Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F	
Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F	
		< SWITCH >	
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (REC PROOF)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY) (C.C.LOCK)	

1-658-213-11 FP-355 FLEXIBLE BOARD
****

(Ref.No.5,000 Series)

Ref. No.	Part No.	Description	Remarks
		< DIODE >	
D001	8-719-988-42	DIODE GL453S	

A-7072-501-A JK-145 BOARD, COMPLETE
****

(Ref.No.2,000 Series)

Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
CN060	1-766-342-21	CONNECTOR, FFC/FPC 12P	
		< DIODE >	
D060	8-719-027-50	DIODE MA142WK	
D061	8-719-404-49	DIODE MA111	
D063	8-719-052-33	DIODE MAZV082DFL	
D064	8-719-420-14	DIODE MA8082-M	
D069	8-719-052-33	DIODE MAZV082DFL	
		< JACK >	
J060	1-537-726-11	TERMINAL BOARD (VIDEO/AUDIO OUT)	
		< COIL >	
L061	1-216-295-91	CONDUCTOR, CHIP (2012)	

A-7072-506-A MA-265 BOARD, COMPLETE
****

(Ref.No.2,000 Series)

Ref. No.	Part No.	Description	Remarks
		< CAPACITOR >	
C964	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C978	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C980	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C982	1-165-128-11	CERAMIC CHIP 0.22uF 16V	
C983	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C984	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C985	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C986	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C988	1-164-346-11	CERAMIC CHIP 1uF 16V	
C990	1-126-607-11	ELECT CHIP 47uF 20% 4V	
C991	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C993	1-124-779-00	ELECT CHIP 10uF 20% 16V	
		< CONNECTOR >	
CN951	1-764-707-21	CONNECTOR, FFC/FPC (LIF) 8P	
CN953	1-580-055-21	PIN, CONNECTOR 2P	
		< DIODE >	
D951	8-719-404-49	DIODE MA111	
D952	8-719-404-49	DIODE MA111	
		< IC >	
IC952	8-759-339-63	IC NJM2118V-TE2	
IC953	8-749-012-17	IC RS-140-T	
		< JACK >	
J951	1-568-027-11	JACK, SMALL TYPE 1P (MIC)	
		< COIL >	
L952	1-414-235-11	INDUCTOR, FERRITE BEAD	
L953	1-414-235-11	INDUCTOR, FERRITE BEAD	
		< TRANSISTOR >	
Q951	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
		< RESISTOR >	
R972	1-216-864-11	METAL CHIP 0 5% 1/16W	
R978	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R979	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R980	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R981	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R982	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R983	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R997	1-216-809-11	METAL CHIP 100 5% 1/16W	

PW-113 TZ-5

Ref. No.	Part No.	Description	Remarks
	A-7072-507-A	PW-113 BOARD, COMPLETE (TR340E)	
		***********************	
	A-7072-603-A	PW-113 BOARD, COMPLETE (TR520E)	
		***********************	
		(Ref.No.2,000 Series)	
		< CONNECTOR >	
CN583	1-764-705-11	CONNECTOR, FFC/FPC (LIF) 6P	
CN584	1-764-703-11	CONNECTOR, FFC/FPC (LIF) 4P (TR520E)	
		< SWITCH >	
S490	1-572-467-21	SWITCH, PUSH (1 KEY)(CAMERA)	
S491	1-572-467-21	SWITCH, PUSH (1 KEY)(PLAYER)	

Ref. No.	Part No.	Description	Remarks
	A-7072-504-A	TZ-5 BOARD, COMPLETE (TR520E)	
		*********************	
		(Ref.No.5,000 Series)	
		< CAPACITOR >	
C650	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C651	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C652	1-104-908-11	TANTAL. CHIP 47uF 20% 4V	
C653	1-104-908-11	TANTAL. CHIP 47uF 20% 4V	
C654	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C655	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C656	1-164-299-11	CERAMIC CHIP 0.22uF 10% 25V	
C657	1-164-299-11	CERAMIC CHIP 0.22uF 10% 25V	
C658	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
C659	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
C660	1-128-257-21	ELECT CHIP 33uF 20% 10V	
C661	1-128-257-21	ELECT CHIP 33uF 20% 10V	
C663	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C664	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C665	1-110-501-11	CERAMIC CHIP 0.33uF 10% 16V	
C666	1-110-501-11	CERAMIC CHIP 0.33uF 10% 16V	
C668	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C669	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C672	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C673	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C674	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C675	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
		< CONNECTOR >	
CN650	1-764-526-11	CONNECTOR, FFC/FPC (ZIF) 18P	
		< IC >	
IC650	8-759-080-34	IC TA75W01FU	
IC651	8-759-388-63	IC NJU7064V(TE2)	
IC652	8-759-234-77	IC TC4S66F	
IC653	8-759-234-77	IC TC4S66F	
IC655	8-752-855-05	IC CXP81120-024R	

Ref. No.	Part No.	Description	Remarks
		< COIL >	
L650	1-414-078-11	INDUCTOR 10uH	
L652	1-412-058-11	INDUCTOR CHIP 10uH	
		< TRANSISTOR >	
Q650	8-729-402-42	TRANSISTOR UN5213	
		< RESISTOR >	
R650	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R651	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R652	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R653	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R654	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R655	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R656	1-216-803-11	METAL CHIP 33 5% 1/16W	
R658	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R659	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R660	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	
R661	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	
R662	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	
R663	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	
R664	1-218-871-11	METAL CHIP 10K 0.50% 1/16W	
R665	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R666	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R667	1-218-871-11	METAL CHIP 10K 0.50% 1/16W	
R668	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R669	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R670	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R672	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R673	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R674	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R675	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R676	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R682	1-218-885-11	METAL CHIP 39K 0.50% 1/16W	
R683	1-218-891-11	METAL CHIP 68K 0.50% 1/16W	
R684	1-218-885-11	METAL CHIP 39K 0.50% 1/16W	
R685	1-218-891-11	METAL CHIP 68K 0.50% 1/16W	
R688	1-216-864-11	METAL CHIP 0 5% 1/16W	
R689	1-216-864-11	METAL CHIP 0 5% 1/16W	
		< SENSOR >	
SE650	1-810-725-81	SENSOR, ANGULAR VELOCITY	
SE651	1-810-725-71	SENSOR, ANGULAR VELOCITY	
		< VIBRATOR >	
X650	1-579-553-11	VIBRATOR 12MHz	

Ref. No.	Part No.	Description			Remarks
	A-7092-572-A	VC-167P BOARD, COMPLETE (TR340E)			
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	A-7092-866-A	VC-167P BOARD, COMPLETE (TR520E)			
		************************			
					(Ref.No.1,000 Series)
		< CAPACITOR >			
C061	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C072	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C073	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V (TR520E)
C075	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C076	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C077	1-164-346-11	CERAMIC CHIP	1uF		16V
C078	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C101	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C102	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C103	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C104	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C106	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C107	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C108	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C109	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C110	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C111	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C112	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C113	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C114	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C115	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C116	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C117	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C118	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C119	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C120	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C121	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C122	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C123	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C124	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C125	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C127	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C128	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C129	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C130	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C134	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C135	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C136	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C137	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C138	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C139	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C140	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C141	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C142	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C143	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C148	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C149	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C150	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C152	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C153	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C154	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C155	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C156	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C157	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C160	1-164-346-11	CERAMIC CHIP	1uF		16V (TR340E)
C160	1-109-982-11	CERAMIC CHIP	1uF	10%	10V (TR520E)
C162	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C163	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C164	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C165	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C166	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C167	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C168	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C169	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C170	1-164-346-11	CERAMIC CHIP	1uF		16V (TR340E)
C170	1-109-982-11	CERAMIC CHIP	1uF	10%	10V (TR520E)
C171	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C202	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C203	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V(TR340E)
C204	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C205	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C206	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C207	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C208	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C209	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C210	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C211	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C212	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C213	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C214	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C215	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C216	1-126-246-11	ELECT CHIP	220uF	20%	4V
C217	1-107-682-11	CERAMIC CHIP	1uF	10%	16V (TR340E)
C217	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V (TR520E)
C218	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C219	1-107-682-11	CERAMIC CHIP	1uF	10%	16V (TR340E)
C219	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V(TR520E)
C223	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C224	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C225	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C226	1-164-315-11	CERAMIC CHIP	470PF	2%	50V
C227	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C228	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V(TR520E)
C229	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C230	1-164-392-11	CERAMIC CHIP	390PF	5%	50V

Ref. No.	Part No.	Description			Remarks
C231	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C232	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C234	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C235	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C236	1-107-682-11	CERAMIC CHIP	1uF	10%	16V (TR340E)
C236	1-135-091-91	TANTAL. CHIP	1uF	20%	16V (TR520E)
C237	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C238	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C240	1-164-505-11	CERAMIC CHIP	2.2uF		16V (TR340E)
C240	1-109-982-11	CERAMIC CHIP	1uF	10%	10V (TR520E)
C242	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C243	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C244	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C245	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C246	1-135-073-00	TANTALUM CHIP	0.33uF	10%	35V
C247	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C248	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C249	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C252	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C254	1-164-237-11	CERAMIC CHIP	16PF	5%	50V
C256	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C257	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C260	1-164-505-11	CERAMIC CHIP	2.2uF		16V (TR340E)
C260	1-109-982-11	CERAMIC CHIP	1uF	10%	10V (TR520E)
C261	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C263	1-162-920-11	CERAMIC CHIP	27PF	5%	50V (TR340E)
C265	1-162-926-11	CERAMIC CHIP	82PF	5%	50V (TR340E)
C266	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TR340E)
C267	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C269	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C270	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C271	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C400	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C401	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C402	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C403	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C404	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C405	1-162-907-11	CERAMIC CHIP	2PF	0.25PF	50V
C406	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C407	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C408	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C409	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C411	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C412	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C413	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C414	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C415	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C416	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C417	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C418	1-162-957-11	CERAMIC CHIP	220PF	5%	50V

Ref. No.	Part No.	Description			Remarks
C419	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C420	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C421	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C423	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C424	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C425	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C426	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C427	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C428	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C429	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C430	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C431	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C432	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C433	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C434	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C435	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C436	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C437	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C438	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C439	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C441	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C442	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C443	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C444	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C445	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C446	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C447	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C448	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C449	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C450	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C451	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C452	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C453	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C456	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C458	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C502	1-164-232-11	CERAMIC CHIP	0.01uF		50V (TR340E)
C504	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C505	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C513	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C515	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C520	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C521	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V(TR520E)
C522	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C523	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C526	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V(TR520E)
C529	1-135-201-11	TANTALUM CHIP	10uF	20%	4V (TR340E)
C529	1-104-847-11	TANTAL. CHIP	22uF	20%	4V (TR520E)
C531	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C532	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C533	1-216-864-11	METAL CHIP	0	5%	1/16W

Ref. No.	Part No.	Description				Remarks
C534	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V	
C535	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C537	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C540	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C543	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V	
C546	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C548	1-107-685-11	TANTAL. CHIP	15uF	20%	6.3V	
C550	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	
C554	1-135-091-91	TANTAL. CHIP	1uF	20%	16V	
C555	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C556	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C557	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(TR340E)
C557	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C558	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	
C561	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C571	1-107-682-11	CERAMIC CHIP	1uF	10%	16V	
C572	1-164-392-11	CERAMIC CHIP	390PF	5%	50V	
C573	1-135-091-91	TANTAL. CHIP	1uF	20%	16V	
C574	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C575	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C576	1-162-957-11	CERAMIC CHIP	220PF	5%	50V	
C577	1-162-957-11	CERAMIC CHIP	220PF	5%	50V	
C578	1-107-682-11	CERAMIC CHIP	1uF	10%	16V	
C602	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C603	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	
C604	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C605	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C606	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C607	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C608	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C609	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C610	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C611	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C612	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C613	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C614	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C615	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C616	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C618	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C619	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V	
C620	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C701	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C702	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C703	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C704	1-164-346-11	CERAMIC CHIP	1uF		16V	
C706	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V	
C707	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C708	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C710	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C711	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C712	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR520E)
C713	1-107-682-11	CERAMIC CHIP	1uF	10%	16V	(TR340E)
C713	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	(TR520E)
C714	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C715	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C717	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C718	1-162-919-11	CERAMIC CHIP	22PF	5%	50V	
C719	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C720	1-162-923-11	CERAMIC CHIP	47PF	5%	50V	
C722	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C724	1-162-924-11	CERAMIC CHIP	56PF	5%	50V	(TR340E)
C724	1-162-920-11	CERAMIC CHIP	27PF	5%	50V	(TR520E)
C725	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C726	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C727	1-107-682-11	CERAMIC CHIP	1uF	10%	16V	(TR340E)
C727	1-135-091-91	TANTAL. CHIP	1uF	20%	16V	(TR520E)
C728	1-107-682-11	CERAMIC CHIP	1uF	10%	16V	(TR340E)
C728	1-135-091-91	TANTAL. CHIP	1uF	20%	16V	(TR520E)
C729	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C730	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C731	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C732	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C734	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C735	1-107-682-11	CERAMIC CHIP	1uF	10%	16V	(TR340E)
C735	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	(TR520E)
C736	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR520E)
C739	1-162-921-11	CERAMIC CHIP	33PF	5%	50V	
C740	1-164-315-11	CERAMIC CHIP	470PF	2%	50V	
C741	1-135-148-21	TANTAL. CHIP	1.5uF	20%	10V	
C742	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C745	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C746	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C749	1-107-682-11	CERAMIC CHIP	1uF	10%	16V	(TR340E)
C749	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	(TR520E)
C750	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR520E)
C751	1-164-346-11	CERAMIC CHIP	1uF		16V	
C754	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	(TR520E)
C755	1-164-346-11	CERAMIC CHIP	1uF		16V	
C757	1-107-682-11	CERAMIC CHIP	1uF	10%	16V	(TR340E)
C757	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	(TR520E)
C758	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR520E)
C759	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C760	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	(TR520E)
C761	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR520E)
C772	1-107-682-11	CERAMIC CHIP	1uF	10%	16V	(TR340E)
C772	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	(TR520E)
C773	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR520E)
C774	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR520E)
C775	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR520E)

VC-167P

Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
CN060	1-691-350-21	CONNECTOR, FFC/FPC (ZIF) 12P	
CN101	1-766-341-21	CONNECTOR, FFC/FPC 11P	
CN102	1-764-708-21	CONNECTOR, FFC/FPC (LIF) 9P	
CN300	1-774-054-21	CONNECTOR, FFC/FPC (ZIF) 45P	
* CN301	1-691-931-11	CONNECTOR, BOARD TO BOARD 38P	
CN400	1-766-340-21	CONNECTOR, FFC/FPC 10P	
CN401	1-766-342-21	CONNECTOR, FFC/FPC 12P	
CN402	1-766-345-21	CONNECTOR, FFC/FPC 15P	
CN403	1-766-644-21	CONNECTOR, FFC/FPC 8P	
CN501	1-764-707-21	CONNECTOR, FFC/FPC (LIF) 8P	
CN601	1-764-529-11	CONNECTOR, FFC/FPC (ZIF) 22P	
CN701	1-750-630-11	CONNECTOR, FFC/FPC (ZIF) 16P	
CN702	1-766-348-21	CONNECTOR, FFC/FPC 18P (TR520E)	
		< DIODE >	
D101	8-719-404-49	DIODE MA111	
D102	8-719-820-41	DIODE 1SS302	
D103	8-719-027-50	DIODE MA142WK	
D201	8-719-027-50	DIODE MA142WK	
D202	8-719-404-49	DIODE MA111	
D203	8-719-027-48	DIODE MA142WA	
D301	8-719-404-49	DIODE MA111 (TR520E)	
D302	8-719-404-49	DIODE MA111	
D309	8-719-037-73	DIODE CL-181Y-C-TS (STOP) (TR520E)	
D310	8-719-037-73	DIODE CL-181Y-C-TS (REW) (TR520E)	
D311	8-719-037-73	DIODE CL-181Y-C-TS (PLAY) (TR520E)	
D312	8-719-037-73	DIODE CL-181Y-C-TS (FF) (TR520E)	
D313	8-719-037-73	DIODE CL-181Y-C-TS (PAUSE)(TR520E)	
D317	8-719-037-73	DIODE CL-181Y-C-TS (REW) (TR520E)	
D318	8-719-037-73	DIODE CL-181Y-C-TS (FF) (TR520E)	
D319	8-719-033-13	DIODE CL-170Y-CD-T (DEW)	
D701	8-719-027-48	DIODE MA142WA	
D702	8-719-404-49	DIODE MA111	
D703	8-719-404-49	DIODE MA111	
D705	8-719-002-81	DIODE 1T363	
D706	8-713-102-28	DIODE 1T379-04-T8A	
		< IC >	
IC061	8-759-290-12	IC M62370GP-650D	
IC101	8-752-071-48	IC CXA2002R	
IC201	8-752-071-47	IC CXA2001R	
IC202	8-759-035-90	IC SC7S02F	
IC204	8-759-234-20	IC TC7S08F	
IC400	8-752-870-27	IC CXP87460-008R	
IC401	8-759-278-57	IC AK6420HF-E2	
IC402	8-752-070-46	IC CXA1814Q	
IC403	8-759-327-67	IC LB1950V-TLM	
IC404	8-759-327-62	IC TA8482FN-EL	
IC405	8-759-234-20	IC TC7S08F	
IC501	8-752-075-66	IC CXA1837R	
IC570	8-759-334-09	IC CXA2003N	
IC601	8-759-337-40	IC NJM2904V(TE2)	
IC602	8-759-337-41	IC NJM2902V(TE2)	
IC603	8-759-247-07	IC MPC17A34VMEL	
IC604	8-752-365-65	IC CXD2126N	
IC701	8-752-372-14	IC CXD1267AN	
IC702	8-752-374-25	IC CXD2415R	
IC703	8-752-073-11	IC CXA2006Q	
IC704	8-752-375-80	IC CXD2312R (TR340E)	
IC704	8-759-386-91	IC HD49321FEB (TR520E)	
IC705	8-752-374-02	IC CXD2418R	
IC706	8-759-349-58	IC CXD8562R	
IC707	8-759-297-76	IC CXD2152AREL (TR520E)	
IC708	8-759-337-40	IC NJM2904V(TE2)	
IC709	8-759-198-34	IC TA75S558F	
IC710	8-759-198-34	IC TA75S558F	
		< COIL >	
L061	1-412-064-11	INDUCTOR CHIP 100uH	
L062	1-216-295-91	CONDUCTOR, CHIP (2012)(TR340E)	
L062	1-414-078-11	INDUCTOR 10uH (TR520E)	
L063	1-412-052-21	INDUCTOR CHIP 1uH	
L101	1-412-066-21	INDUCTOR CHIP 220uH	
L102	1-412-066-21	INDUCTOR CHIP 220uH	
L103	1-412-066-21	INDUCTOR CHIP 220uH	
L104	1-412-952-11	INDUCTOR 12uH	
L105	1-412-060-11	INDUCTOR CHIP 22uH	
L106	1-412-957-11	INDUCTOR 33uH	
L107	1-412-280-31	INDUCTOR 330uH	
L108	1-412-282-41	INDUCTOR 470uH	
L109	1-412-355-41	INDUCTOR 180uH	
L113	1-216-295-91	CONDUCTOR, CHIP (2012)(TR340E)	
L113	1-414-078-11	INDUCTOR 10uH (TR520E)	
L114	1-412-355-41	INDUCTOR 180uH	
L115	1-412-957-11	INDUCTOR 33uH	
L116	1-414-078-11	INDUCTOR 10uH	
L118	1-414-373-31	INDUCTOR CHIP 10uH	
L119	1-412-950-11	INDUCTOR 8.2uH	
L120	1-410-658-31	INDUCTOR CHIP 220uH	
L121	1-410-655-31	INDUCTOR CHIP 120uH	
L202	1-412-064-11	INDUCTOR CHIP 100uH	
L203	1-412-962-11	INDUCTOR 82uH	
L207	1-412-962-11	INDUCTOR 82uH	
L210	1-412-951-11	INDUCTOR 10uH (TR340E)	
L211	1-216-296-91	CONDUCTOR, CHIP (3216)(TR340E)	
L211	1-412-058-11	INDUCTOR CHIP 10uH (TR520E)	
L212	1-216-296-91	CONDUCTOR, CHIP (3216) (TR340E)	
L212	1-412-058-11	INDUCTOR CHIP 10uH (TR520E)	

Ref. No.	Part No.	Description	Remarks
L213	1-414-196-41	INDUCTOR 47uH	
L214	1-412-056-11	INDUCTOR CHIP 4.7uH	
L215	1-412-962-11	INDUCTOR 82uH	
L216	1-414-170-41	INDUCTOR 100uH	(TR340E)
L216	1-412-963-11	INDUCTOR 100uH	(TR520E)
L400	1-412-058-11	INDUCTOR CHIP 10uH	
L401	1-412-959-11	INDUCTOR 47uH	
L570	1-414-078-11	INDUCTOR 10uH	
L601	1-412-058-11	INDUCTOR CHIP 10uH	
L602	1-412-058-11	INDUCTOR CHIP 10uH	
L603	1-412-951-11	INDUCTOR 10uH	
L701	1-216-296-91	CONDUCTOR, CHIP (3216)	(TR340E)
L701	1-412-058-11	INDUCTOR CHIP 10uH	(TR520E)
L703	1-216-295-91	CONDUCTOR, CHIP (2012)	(TR340E)
L703	1-414-078-11	INDUCTOR 10uH	(TR520E)
L704	1-412-058-11	INDUCTOR CHIP 10uH	
L706	1-216-296-91	CONDUCTOR, CHIP (3216)	(TR340E)
L706	1-412-058-11	INDUCTOR CHIP 10uH	(TR520E)
L707	1-412-979-21	INDUCTOR 1uH	
L708	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR340E)
L708	1-412-979-21	INDUCTOR 1uH	(TR520E)
L709	1-216-296-91	CONDUCTOR, CHIP (3216)	(TR340E)
L709	1-412-052-21	INDUCTOR CHIP 1uH	(TR520E)
L710	1-412-052-21	INDUCTOR CHIP 1uH	
L712	1-414-078-11	INDUCTOR 10uH	
L714	1-412-058-11	INDUCTOR CHIP 10uH	
L715	1-216-295-91	CONDUCTOR, CHIP (2012)	(TR340E)
L715	1-414-078-11	INDUCTOR 10uH	(TR520E)
L716	1-414-078-11	INDUCTOR 10uH	(TR520E)
L751	1-216-295-91	CONDUCTOR, CHIP (2012)	(TR340E)
L751	1-414-078-11	INDUCTOR 10uH	(TR520E)

< TRANSISTOR >

Ref. No.	Part No.	Description	Remarks
Q061	8-729-101-07	TRANSISTOR 2SB798-DL	
Q062	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q063	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q064	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q065	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q101	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q102	8-729-402-48	TRANSISTOR UN521E-TX	
Q104	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q106	8-729-905-23	TRANSISTOR 2SA1576-R	
Q107	8-729-824-02	TRANSISTOR 2SA1838	
Q108	8-729-402-42	TRANSISTOR UN5213	
Q109	8-729-402-42	TRANSISTOR UN5213	
Q110	8-729-230-63	TRANSISTOR 2SC4116-YG	(TR340E)
Q110	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	(TR520E)
Q111	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q112	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q113	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q114	8-729-402-42	TRANSISTOR UN5213	
Q120	8-729-403-35	TRANSISTOR UN5113	
Q123	8-729-015-74	TRANSISTOR UN5111-TX	
Q124	8-729-117-73	TRANSISTOR 2SC4178-F14	
Q125	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q126	8-729-402-42	TRANSISTOR UN5213	
Q129	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q130	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	
Q131	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q202	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q206	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q208	8-729-402-42	TRANSISTOR UN5213	
Q212	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q213	8-729-402-42	TRANSISTOR UN5213	
Q214	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q215	8-729-013-15	TRANSISTOR 2SC4909-TL	
Q216	8-729-420-20	TRANSISTOR XN4312	
Q217	8-729-420-12	TRANSISTOR XN4213	
Q218	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q219	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q221	8-729-402-42	TRANSISTOR UN5213	
Q222	8-729-402-42	TRANSISTOR UN5213	
Q223	8-729-230-63	TRANSISTOR 2SC4116-YG	(TR340E)
Q224	8-729-420-24	TRANSISTOR 2SB1218A-QRS	(TR340E)
Q226	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q227	8-729-013-15	TRANSISTOR 2SC4909-TL	
Q301	8-729-807-86	TRANSISTOR 2SB1295-UL5	(TR520E)
Q302	8-729-402-42	TRANSISTOR UN5213	(TR520E)
Q303	8-729-015-76	TRANSISTOR UN5211-TX	
Q400	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q401	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q501	8-729-420-53	TRANSISTOR UN5115	
Q507	8-729-421-26	TRANSISTOR UN5214	
Q570	8-729-402-42	TRANSISTOR UN5213	
Q601	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q602	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q603	8-729-420-53	TRANSISTOR UN5115	
Q701	8-729-403-27	TRANSISTOR XN4401	
Q703	8-729-402-42	TRANSISTOR UN5213	
Q704	8-729-403-35	TRANSISTOR UN5113	
Q705	8-729-403-35	TRANSISTOR UN5113	
Q706	8-729-402-42	TRANSISTOR UN5213	
Q750	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q752	8-729-420-24	TRANSISTOR 2SB1218A-QRS	

< RESISTOR >

Ref. No.	Part No.	Description	Remarks
R062	1-216-864-11	METAL CHIP 0 5% 1/16W	
R077	1-216-138-00	METAL CHIP 3.3 5% 1/8W	
R078	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R079	1-216-820-11	METAL CHIP 820 5% 1/16W	
R080	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R081	1-216-818-11	METAL CHIP 560 5% 1/16W	
R082	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R083	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R084	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R085	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	

Ref. No.	Part No.	Description	Remarks
R086	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R087	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R088	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R091	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R092	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R101	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R102	1-216-815-11	METAL CHIP 330 5% 1/16W	
R103	1-216-815-11	METAL CHIP 330 5% 1/16W	
R104	1-216-797-11	METAL CHIP 10 5% 1/16W	
R105	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R106	1-218-875-11	METAL CHIP 15K 0.50% 1/16W	
R107	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R108	1-216-864-11	METAL CHIP 0 5% 1/16W	
R109	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R110	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R111	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R114	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R115	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R116	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R117	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R120	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R121	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R122	1-216-818-11	METAL CHIP 560 5% 1/16W	
R123	1-216-815-11	METAL CHIP 330 5% 1/16W	
R125	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R126	1-216-797-11	METAL CHIP 10 5% 1/16W	
R127	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R128	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R129	1-216-819-11	METAL CHIP 680 5% 1/16W	
R130	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R131	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R132	1-216-813-11	METAL CHIP 220 5% 1/16W	
R133	1-216-818-11	METAL CHIP 560 5% 1/16W	
R134	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R141	1-216-816-11	METAL CHIP 390 5% 1/16W	
R149	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R150	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R152	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R153	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R154	1-216-817-11	METAL CHIP 470 5% 1/16W	
R155	1-216-807-11	METAL CHIP 68 5% 1/16W	
R156	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R157	1-216-816-11	METAL CHIP 390 5% 1/16W	
R158	1-216-819-11	METAL CHIP 680 5% 1/16W	
R159	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R160	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R161	1-216-864-11	METAL CHIP 0 5% 1/16W	
R162	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R163	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R164	1-216-864-11	METAL CHIP 0 5% 1/16W	
R165	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R166	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R167	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R168	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R169	1-216-804-11	METAL CHIP 39 5% 1/16W	
R170	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R171	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R172	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R173	1-216-864-11	METAL CHIP 0 5% 1/16W	
R176	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R177	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R178	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R179	1-216-817-11	METAL CHIP 470 5% 1/16W	
R180	1-216-818-11	METAL CHIP 560 5% 1/16W	
R181	1-216-818-11	METAL CHIP 560 5% 1/16W	
R182	1-216-809-11	METAL CHIP 100 5% 1/16W	
R183	1-216-818-11	METAL CHIP 560 5% 1/16W	
R184	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R185	1-216-818-11	METAL CHIP 560 5% 1/16W	
R186	1-216-818-11	METAL CHIP 560 5% 1/16W	
R187	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R188	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R189	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R190	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R191	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R192	1-216-814-11	METAL CHIP 270 5% 1/16W	
R193	1-216-813-11	METAL CHIP 220 5% 1/16W	
R194	1-216-803-11	METAL CHIP 33 5% 1/16W	
R196	1-216-818-11	METAL CHIP 560 5% 1/16W	
R197	1-216-864-11	METAL CHIP 0 5% 1/16W	
R201	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R202	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TR340E)
R202	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR520E)
R203	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	(TR340E)
R204	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R210	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR340E)
R210	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TR520E)
R211	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	(TR520E)
R212	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R213	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R214	1-216-807-11	METAL CHIP 68 5% 1/16W	
R215	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R216	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R218	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R219	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R220	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R221	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R222	1-216-818-11	METAL CHIP 560 5% 1/16W	
R223	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R225	1-216-833-11	METAL CHIP 10K 5% 1/16W	

Ref. No.	Part No.	Description	Remarks
R227	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R228	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R229	1-218-863-11	METAL CHIP 4.7K 0.50% 1/16W	
R230	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R232	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R234	1-218-849-11	METAL CHIP 1.2K 0.50% 1/16W	
R235	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R239	1-216-864-11	METAL CHIP 0 5% 1/16W	
R241	1-218-839-11	METAL GLAZE 470 0.50% 1/16W	
R243	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R244	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R247	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R248	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R249	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R254	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R255	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R256	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R257	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R259	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R260	1-216-817-11	METAL CHIP 470 5% 1/16W	
R261	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R262	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R265	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR340E)
R266	1-216-864-11	METAL CHIP 0 5% 1/16W	
R267	1-216-864-11	METAL CHIP 0 5% 1/16W	
R268	1-216-818-11	METAL CHIP 560 5% 1/16W	(TR340E)
R270	1-216-817-11	METAL CHIP 470 5% 1/16W	
R271	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R272	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R273	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R274	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R276	1-216-864-11	METAL CHIP 0 5% 1/16W	
R277	1-216-819-11	METAL CHIP 680 5% 1/16W	
R279	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	(TR340E)
R281	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R282	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	(TR520E)
R283	1-216-819-11	METAL CHIP 680 5% 1/16W	(TR340E)
R284	1-216-819-11	METAL CHIP 680 5% 1/16W	(TR340E)
R286	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TR340E)
R287	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR340E)
R289	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TR340E)
R290	1-216-864-11	METAL CHIP 0 5% 1/16W	
R291	1-216-864-11	METAL CHIP 0 5% 1/16W	
R293	1-216-817-11	METAL CHIP 470 5% 1/16W	
R294	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R295	1-216-852-11	METAL CHIP 390K 5% 1/16W	
R296	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R297	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R298	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R299	1-218-272-11	METAL GLAZE 5.1K 5% 1/16W	
R301	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R302	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R303	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R304	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R305	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R307	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R308	1-216-817-11	METAL CHIP 470 5% 1/16W	(TR520E)
R309	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TR520E)
R310	1-208-762-11	METAL GLAZE 150 0.50% 1/10W	(TR520E)
R311	1-208-750-11	METAL GLAZE 47 0.50% 1/10W	(TR520E)
R312	1-208-750-11	METAL GLAZE 47 0.50% 1/10W	(TR520E)
R313	1-208-750-11	METAL GLAZE 47 0.50% 1/10W	(TR520E)
R314	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R315	1-218-290-11	METAL GLAZE 6.2K 5% 1/16W	
R316	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R317	1-218-290-11	METAL GLAZE 6.2K 5% 1/16W	
R318	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R319	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R320	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R321	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R327	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R328	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R329	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R330	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R331	1-216-864-11	METAL CHIP 0 5% 1/16W	
R333	1-216-864-11	METAL CHIP 0 5% 1/16W	
R334	1-208-766-11	METAL GLAZE 220 0.50% 1/10W	
R400	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R401	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R402	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R403	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R404	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R405	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R406	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R407	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R408	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R409	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R410	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R411	1-216-864-11	METAL CHIP 0 5% 1/16W	
R412	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R413	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R414	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R417	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R418	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R419	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R420	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R421	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R422	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R423	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R424	1-216-821-11	METAL CHIP 1K 5% 1/16W	

Ref. No.	Part No.	Description			Remarks
R425	1-216-833-11	METAL CHIP	10K	5%	1/16W
R426	1-216-833-11	METAL CHIP	10K	5%	1/16W
R427	1-216-849-11	METAL CHIP	220K	5%	1/16W
R428	1-216-841-11	METAL CHIP	47K	5%	1/16W
R429	1-216-800-11	METAL GLAZE	18	5%	1/16W
R430	1-216-821-11	METAL CHIP	1K	5%	1/16W
R434	1-216-835-11	METAL CHIP	15K	5%	1/16W
R436	1-216-845-11	METAL CHIP	100K	5%	1/16W
R437	1-216-841-11	METAL CHIP	47K	5%	1/16W
R439	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R440	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R441	1-216-837-11	METAL CHIP	22K	5%	1/16W
R442	1-216-845-11	METAL CHIP	100K	5%	1/16W
R444	1-216-837-11	METAL CHIP	22K	5%	1/16W
R445	1-216-864-11	METAL CHIP	0	5%	1/16W
R446	1-216-836-11	METAL CHIP	18K	5%	1/16W
R447	1-216-833-11	METAL CHIP	10K	5%	1/16W
R448	1-216-833-11	METAL CHIP	10K	5%	1/16W
R449	1-216-833-11	METAL CHIP	10K	5%	1/16W
R450	1-216-833-11	METAL CHIP	10K	5%	1/16W
R451	1-216-845-11	METAL CHIP	100K	5%	1/16W
R452	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R453	1-217-671-11	METAL CHIP	1	5%	1/10W
R454	1-217-671-11	METAL CHIP	1	5%	1/10W
R455	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R456	1-216-841-11	METAL CHIP	47K	5%	1/16W
R458	1-217-671-11	METAL CHIP	1	5%	1/10W
R459	1-217-671-11	METAL CHIP	1	5%	1/10W
R460	1-217-671-11	METAL CHIP	1	5%	1/10W
R461	1-216-845-11	METAL CHIP	100K	5%	1/16W
R462	1-216-833-11	METAL CHIP	10K	5%	1/16W
R463	1-216-833-11	METAL CHIP	10K	5%	1/16W
R464	1-216-833-11	METAL CHIP	10K	5%	1/16W
R465	1-216-808-11	METAL CHIP	82	5%	1/16W
R466	1-216-845-11	METAL CHIP	100K	5%	1/16W
R467	1-216-019-00	METAL CHIP	56	5%	1/10W
R468	1-216-833-11	METAL CHIP	10K	5%	1/16W
R469	1-216-833-11	METAL CHIP	10K	5%	1/16W
R471	1-216-821-11	METAL CHIP	1K	5%	1/16W
R472	1-216-833-11	METAL CHIP	10K	5%	1/16W
R473	1-216-833-11	METAL CHIP	10K	5%	1/16W
R474	1-216-821-11	METAL CHIP	1K	5%	1/16W
R475	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R476	1-216-845-11	METAL CHIP	100K	5%	1/16W
R477	1-216-841-11	METAL CHIP	47K	5%	1/16W
R478	1-216-821-11	METAL CHIP	1K	5%	1/16W
R479	1-216-817-11	METAL CHIP	470	5%	1/16W
R481	1-216-817-11	METAL CHIP	470	5%	1/16W
R482	1-216-817-11	METAL CHIP	470	5%	1/16W
R501	1-216-853-11	METAL CHIP	470K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R503	1-216-864-11	METAL CHIP	0	5%	1/16W
R506	1-218-893-11	METAL CHIP	82K	0.50%	1/16W
R514	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R515	1-216-864-11	METAL CHIP	0	5%	1/16W
R517	1-216-845-11	METAL CHIP	100K	5%	1/16W
R519	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R520	1-216-864-11	METAL CHIP	0	5%	1/16W
R522	1-216-817-11	METAL CHIP	470	5%	1/16W
R523	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R525	1-216-841-11	METAL CHIP	47K	5%	1/16W
R530	1-216-857-11	METAL CHIP	1M	5%	1/16W
R531	1-216-817-11	METAL CHIP	470	5%	1/16W
R534	1-216-864-11	METAL CHIP	0	5%	1/16W
R537	1-216-864-11	METAL CHIP	0	5%	1/16W
R556	1-216-853-11	METAL CHIP	470K	5%	1/16W
R570	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R571	1-218-871-11	METAL CHIP	10K	0.50%	1/16W
R575	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R581	1-216-833-11	METAL CHIP	10K	5%	1/16W
R601	1-216-001-00	METAL CHIP	10	5%	1/10W
R603	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R604	1-216-845-11	METAL CHIP	100K	5%	1/16W
R605	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R606	1-216-836-11	METAL CHIP	18K	5%	1/16W
R607	1-216-848-11	METAL CHIP	180K	5%	1/16W
R608	1-216-848-11	METAL CHIP	180K	5%	1/16W
R609	1-216-848-11	METAL CHIP	180K	5%	1/16W
R610	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R611	1-216-815-11	METAL CHIP	330	5%	1/16W
R612	1-216-845-11	METAL CHIP	100K	5%	1/16W
R613	1-216-834-11	METAL CHIP	12K	5%	1/16W
R614	1-216-834-11	METAL CHIP	12K	5%	1/16W
R615	1-216-845-11	METAL CHIP	100K	5%	1/16W
R616	1-216-837-11	METAL CHIP	22K	5%	1/16W
R618	1-216-837-11	METAL CHIP	22K	5%	1/16W
R619	1-216-837-11	METAL CHIP	22K	5%	1/16W
R620	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R621	1-216-833-11	METAL CHIP	10K	5%	1/16W
R623	1-216-864-11	METAL CHIP	0	5%	1/16W
R628	1-216-821-11	METAL CHIP	1K	5%	1/16W
R629	1-216-821-11	METAL CHIP	1K	5%	1/16W
R630	1-216-841-11	METAL CHIP	47K	5%	1/16W
R631	1-216-841-11	METAL CHIP	47K	5%	1/16W
R632	1-216-848-11	METAL CHIP	180K	5%	1/16W
R701	1-216-845-11	METAL CHIP	100K	5%	1/16W
R702	1-216-845-11	METAL CHIP	100K	5%	1/16W
R703	1-216-857-11	METAL CHIP	1M	5%	1/16W
R704	1-216-845-11	METAL CHIP	100K	5%	1/16W
R706	1-216-839-11	METAL CHIP	33K	5%	1/16W
R707	1-216-845-11	METAL CHIP	100K	5%	1/16W

Ref. No.	Part No.	Description	Remarks
R708	1-216-864-11	METAL CHIP 0 5% 1/16W	
R709	1-218-847-11	METAL CHIP 1K 0.50% 1/16W	
R710	1-218-876-11	METAL CHIP 16K 0.50% 1/16W	
R713	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R714	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R715	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R717	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R719	1-216-818-11	METAL CHIP 560 5% 1/16W	
R720	1-216-818-11	METAL CHIP 560 5% 1/16W	
R721	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R722	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R723	1-216-818-11	METAL CHIP 560 5% 1/16W	
R724	1-216-818-11	METAL CHIP 560 5% 1/16W	
R725	1-216-864-11	METAL CHIP 0 5% 1/16W	
R726	1-216-846-11	METAL CHIP 120K 5% 1/16W	
R727	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R728	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R729	1-216-864-11	METAL CHIP 0 5% 1/16W	
R730	1-216-864-11	METAL CHIP 0 5% 1/16W	
R732	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R733	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R734	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R735	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R737	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR520E)
R740	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R741	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R742	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R743	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R744	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R745	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R751	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R756	1-216-864-11	METAL CHIP 0 5% 1/16W	
R757	1-216-864-11	METAL CHIP 0 5% 1/16W	
R758	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R759	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R763	1-216-840-11	METAL CHIP 39K 5% 1/16W	(TR520E)
R775	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
		< SWITCH >	
S301	1-692-088-41	SWITCH, TACTILE (EDIT SEARCH+)	
S302	1-692-088-41	SWITCH, TACTILE (EDIT SEARCH-)	
S303	1-692-088-41	SWITCH, TACTILE (PLAY)	
S304	1-692-088-41	SWITCH, TACTILE (PAUSE)	
S305	1-692-088-41	SWITCH, TACTILE (REW)	
S306	1-692-088-41	SWITCH, TACTILE (FF)	
S307	1-692-088-41	SWITCH, TACTILE (STOP)	
		< VIBRATOR >	
X400	1-760-315-11	VIBRATOR, CRYSTAL 11.718MHz	
X701	1-760-321-11	VIBRATOR, CRYSTAL 28.375MHz	
X702	1-579-780-21	VIBRATOR, CRYSTAL 17.7MHz	

Ref. No.	Part No.	Description	Remarks
	A-7072-357-A	VF-102P BOARD, COMPLETE ************************	
			(Ref.No.6,000 Series)
		< CAPACITOR >	
C902	1-163-038-91	CERAMIC CHIP 0.1uF 25V	
C903	1-135-091-91	TANTAL. CHIP 1uF 20% 16V	
C904	1-162-965-11	CERAMIC CHIP 0.0015uF 10% 50V	
C905	1-104-752-11	TANTAL. CHIP 33uF 20% 6.3V	
C906	1-162-638-11	CERAMIC CHIP 1uF 16V	
C907	1-137-306-11	FILM CHIP 0.1uF 5% 16V	
C908	1-162-920-11	CERAMIC CHIP 27PF 5% 50V	
⚠C910	1-164-758-11	CERAMIC CHIP 0.0039uF 5% 50V	
⚠C911	1-164-715-11	CERAMIC CHIP 0.0068uF 5% 50V	
C912	1-107-854-11	TANTAL. CHIP 68uF 20% 6.3V	
C914	1-128-007-11	ELECT CHIP 2.2uF 20% 35V	
C915	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C916	1-164-611-11	CERAMIC CHIP 0.001uF 10% 500V	
C917	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C918	1-107-854-11	TANTAL. CHIP 68uF 20% 6.3V	
		< CONNECTOR >	
CN901	1-566-537-11	CONNECTOR, FPC (NON ZIF) 5P	
CN902	1-573-290-21	PIN, CONNECTOR (1.5MM) (SMD) 4P	
		< DIODE >	
D901	8-719-951-21	DIODE PR1102W-TR	
D903	8-719-404-49	DIODE MA111	
		< IC >	
IC901	8-759-196-14	IC BA7149F-E2	
		< COIL >	
L901	1-412-031-11	INDUCTOR CHIP 47uH	
L902	1-410-387-11	INDUCTOR CHIP 33uH	
⚠L903	1-402-680-21	COIL, FERRITE (HCL)	
		< TRANSISTOR >	
Q902	8-729-106-68	TRANSISTOR 2SD1615A-GP	
Q903	8-729-216-31	TRANSISTOR 2SA1163-G	
Q904	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
		< RESISTOR >	
R901	1-216-817-11	METAL CHIP 470 5% 1/16W	
R902	1-216-817-11	METAL CHIP 470 5% 1/16W	
R903	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R906	1-216-813-11	METAL CHIP 220 5% 1/16W	
R907	1-216-845-11	METAL CHIP 100K 5% 1/16W	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
R908	1-216-852-11	METAL CHIP	390K	5%	1/16W
R909	1-216-833-11	METAL CHIP	10K	5%	1/16W
R910	1-216-835-11	METAL CHIP	15K	5%	1/16W
R911	1-216-160-00	METAL GLAZE	27	5%	1/8W
R912	1-216-857-11	METAL CHIP	1M	5%	1/16W
R913	1-216-820-11	METAL CHIP	820	5%	1/16W
R914	1-216-813-11	METAL CHIP	220	5%	1/16W
R915	1-216-793-11	METAL GLAZE	4.7	5%	1/16W
R916	1-218-881-11	METAL CHIP	27K	0.50%	1/16W
R917	1-218-893-11	METAL CHIP	82K	0.50%	1/16W
R918	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R919	1-216-839-11	METAL CHIP	33K	5%	1/16W
R920	1-216-837-11	METAL CHIP	22K	5%	1/16W
R921	1-216-795-11	METAL GLAZE	6.8	5%	1/16W
R922	1-216-847-11	METAL CHIP	150K	5%	1/16W
R923	1-216-857-11	METAL CHIP	1M	5%	1/16W
R924	1-216-862-11	METAL GLAZE	2.7M	5%	1/16W
R925	1-216-862-11	METAL GLAZE	2.7M	5%	1/16W
R926	1-216-821-11	METAL CHIP	1K	5%	1/16W
R927	1-216-821-11	METAL CHIP	1K	5%	1/16W
R928	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R929	1-216-818-11	METAL CHIP	560	5%	1/16W
R930	1-216-815-11	METAL CHIP	330	5%	1/16W
R931	1-216-810-11	METAL CHIP	120	5%	1/16W
R933	1-216-811-11	METAL CHIP	150	5%	1/16W
		< VARIABLE RESISTOR >			
RV904	1-238-862-11	RES, ADJ, CERMET 1M			
		< TRANSFORMER >			
⚠T901	1-453-124-11	TRANSFORMER ASSY, FLYBACK			
		< THERMISTOR >			
TH901	1-809-350-21	THERMISTOR, NTC (2125)			
		< FLAT CABLE >			
W901	1-540-019-21	SOCKET ASSY, CRT			

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remarks
⚠	A-7003-840-A	AC-V15 AC POWER ADAPTOR (AEP)	
⚠	A-7003-842-A	AC-V15 AC POWER ADAPTOR (UK)	
	A-7092-608-A	CASE (N) ASSY, BATTERY	
	1-473-342-11	REMOTE COMMANDER (RMT-713)	
	1-574-039-21	CORD, CONNECTION (AV CABLE)(1.5m)	
⚠	1-764-622-11	ADAPTOR, CONVERSION	
	1-770-783-11	CONNECTOR, CONVERSION (TR520E)	
	3-800-844-11	INSTRUCTION	
	3-856-183-11	MANUAL, INSTRUCTION (ENGLISH)/SPANISH) (TR340E:AEP/TR520E)	
	3-856-183-21	MANUAL, INSTRUCTION (GERMAN/ITALIAN) (TR340E:AEP/TR520E:AEP)	
	3-856-183-31	MANUAL, INSTRUCTION (FRENCH/DUTCH) (TR340E:AEP/TR520E:AEP)	
	3-856-183-41	MANUAL, INSTRUCTION (SWEDISH/PORTUGUESE) (TR340E:AEP/TR520E:AEP)	
	3-856-183-51	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN) (TR340E:AEP/TR520E:AEP)	
	3-947-969-21	BELT (S), SHOULDER	
*	3-970-455-01	INDIVIDUAL CARTON (TR340E)	
**	NP-33	BATTERY PACK	

NOTE.
**MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 6
ADJUSTMENT

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 6-28.

6-1. CAMERA SECTION ADJUSTMENT
1-1. PREPARATIONS BEFORE ADJUSTMENT

1-1-1. List of service tools

Oscilloscope
Regulated power supply
Vectorscope
Pattern generator
Adjustment screw driver
Color monitor
Digital voltmeter

Ref.No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0 ND filter 0.3	J-6080-808-A J-6080-818-A	White balance check White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Siemens star	J-6080-875-A	For checking the flange back
J-6	Adjustment remote commander(RM-95 upgraded) Note	J-6082-053-B	
J-7	Multi CPC	J-6082-311-A	For video section adjustment (VC-167P board CN002)

Note: If the microprocessor IC in the adjusting remote commander is not the new microprocessor (UPD7503G-C56-12), the pages cannot be switched.
In this case, replace with the new microprocessor (8-759-148-35).

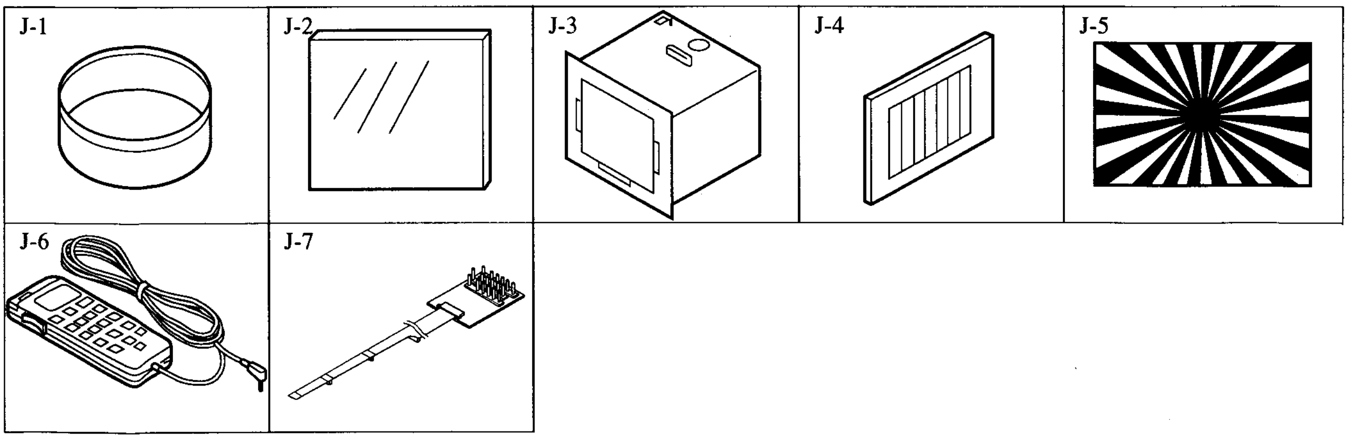


Fig.6-1-1.

1-1-2. Precautions

1. Switch settings

Adjust the switches to the following positions without loading the cassette tape unless otherwise specified.

1.) Camera/video power switch
    Operation switch block .... Camera
2.) PROGRAM AE switch (CF-43 board S489) .... AUTO
3.) STEADY SHOT switch (CF-43 board S486)
    (X24 MODEL) .... OFF
4.) D ZOOM switch (CF-43 board S300) (X24 MODEL) .... OFF
5.) REC MODE switch (CF-43 board S483)
    (X24 MODEL) .... SP

2. Adjustment sequence

Adjust in the given order.

3. Subject

1.) Set the camera and pattern box as shown in Fig. 6-1-2.

2.) Color bar chart (Standard picture frame)

- Adjust the picture frame as shown in Fig. 6-1-3.
- Adjust camera zooming and direction until the camera output waveform on the oscilloscope shown in Fig. 6-1-3 (a) and the color picture on the monitor TV shown in Fig. 6-1-3 (b) have been acquired.
- Maintain this setup until adjustment is complete.

3.) White pattern (Standard picture frame)
Remove the color bar chart from the pattern box and adjust the camera setup until the white pattern picture frame is the same size and same position as the color bar chart (the standard picture frame).

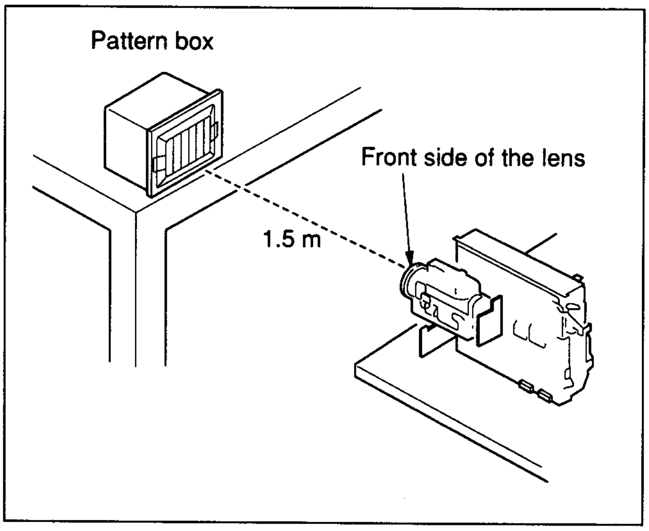

Pattern box
Front side of the lens
1.5 m

Fig. 6-1-2

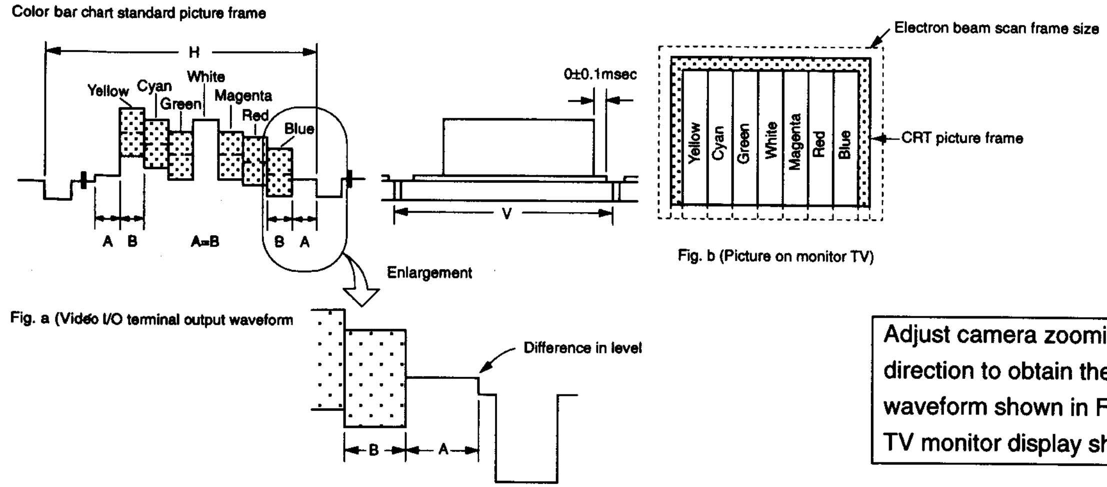

Color bar chart standard picture frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A
B
A=B
B
A
0±0.1msec
V
Enlargement
Difference in level
B
A
Electron beam scan frame size
Yellow
Cyan
Green
White
Magenta
Red
Blue
CRT picture frame

Fig. a (Video I/O terminal output waveform

Fig. b (Picture on monitor TV)

Adjust camera zooming and direction to obtain the output waveform shown in Fig. "a" and the TV monitor display shown in Fig. "b".

Fig. 6-1-3

4.) Chart for flange back adjustment
Join together a piece of white A0 size paper (1189 mm × 841 mm) and a piece of black paper to make the chart shown in Fig. 6-1-4.

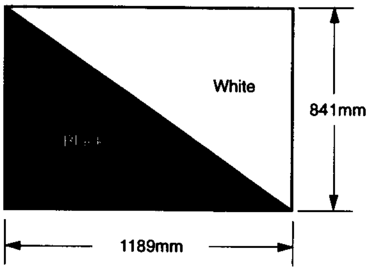

White
Black
841mm
1189mm

Fig. 6-1-4

Note: Use a non-reflecting and non-glazing vellum paper. The size must be A0 or larger and the joint between the white and black paper must not have any undulations.

1-1-3. Preparations

Note 1: Refer to "2. Disassembly" for details of how to remove the cabinet and the respective boards.

Note 2: Removal of the lens block and VC-167P board is not necessary if only adjustments are to be made.

1.) Connect the adjustment equipment as shown in Fig. 6-1-5.

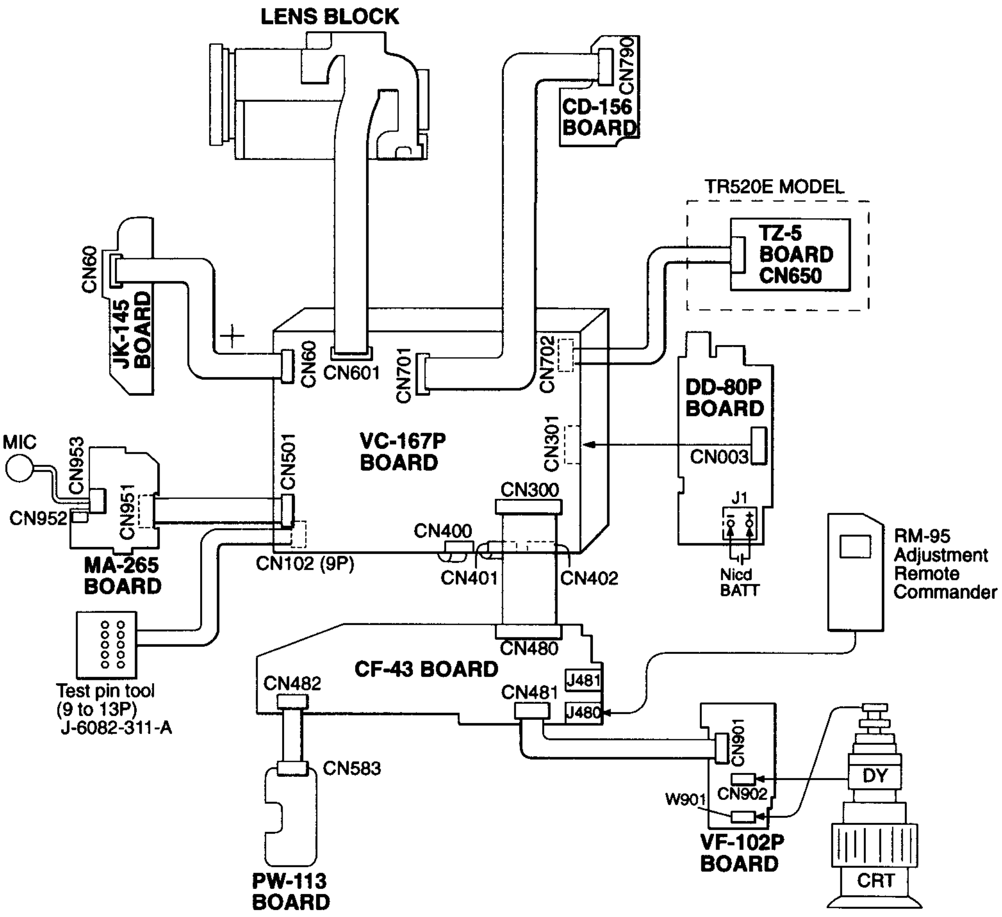

LENS BLOCK
CN790
CD-156 BOARD
TR520E MODEL
TZ-5 BOARD CN650
CN60
JK-145 BOARD
CN60
CN601
CN701
CN702
DD-80P BOARD
CN003
MIC
CN953
CN952
CN951
CN501
VC-167P BOARD
CN301
CN300
J1
Nicd BATT
CN400
CN102 (9P)
CN401
CN402
MA-265 BOARD
RM-95 Adjustment Remote Commander
Test pin tool (9 to 13P) J-6082-311-A
CN480
CF-43 BOARD
CN482
CN481
J481
J480
CN901
CN583
DY
W901
CN902
VF-102P BOARD
CRT
PW-113 BOARD

Fig. 6-1-5.

1-1-4. Adjustment remote commander (RM-95 upgraded)

To perform adjustment, the adjustment data stored in the non-volatile memory must be rewritten using the adjustment remote commander (RM-95 upgraded).

The adjustment remote commander uses the remote commander signal line (LANC) to interactively communicate with the merchandise. The page, address and up/down command data are sent from the adjustment remote commander to the merchandise. In return, the page, address and data are sent to the adjustment remote commander from the merchandise.

1. Using the adjustment remote commander

1) Connect the adjustment remote commander to the LANC terminal (CF-43 board J480).
2) Set the NOR-ADJ (or HOLD) switch of the adjustment remote commander to the "ADJ" (or ON) (service) position.
   If the adjustment remote commander is correctly connected, the adjustment remote commander's LED will show the display as shown in Fig. 6-1-6.
3) Bit value discrimination
   It is necessary to discriminate between the bit values with the data displayed on the adjustment remote commander for all following items. Identify whether the bit value is '1' or '0' with the use of the following diagram.

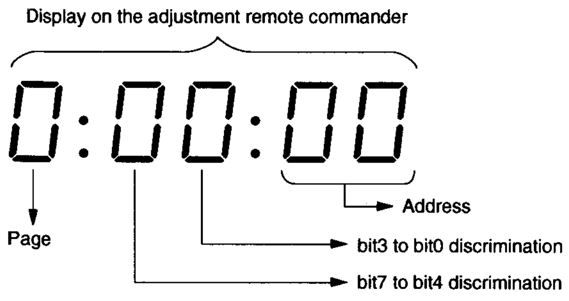

Display on the adjustment remote commander
0:00:00
Page
Address
bit3 to bit0 discrimination
bit7 to bit4 discrimination

Fig 6-1-6

	Display on the adjustment remote commander	Bit values			
		bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A(A)	1	0	1	0
	B(b)	1	0	1	1
	C(C)	1	1	0	0
	D(d)	1	1	0	1
Ⓑ	E(E)	1	1	1	0
	F(F)	1	1	1	1

(example) If "8E" is displayed on the adjustment remote commander, the bit values for bit7 to bit4 are shown in the 'Ⓐ' column, and the bit values for bit3 to bit0 are shown in the 'Ⓑ' column.

4) The adjustment remote controller is operated as follows:

- Changing the page

  The pages increase when the EDIT SEARCH (+) button is pressed and decrease when the EDIT SEARCH (-) button is pressed. Altogether there are 16 pages from page "0" to page "F".

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD display	0	1	2	3	4	5	6	7	8	9	A	b	C	d	E	F
Decimal notation after conversion	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

- Changing the address

  The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. Altogether there are 256 addresses from address "00" to address "FF". Some addresses, which are not used during adjustment, do not appear.

- Taking note the already-stored adjustment data

  The previous adjustment can be erased if the adjustment remote commander is incorrectly handled. To prevent this, it is recommended that all the stored adjustment data be noted down on the attached page F address list.

- Changing the data (Data setting)

  The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. Altogether there 256 data from data "00" to data "FF".

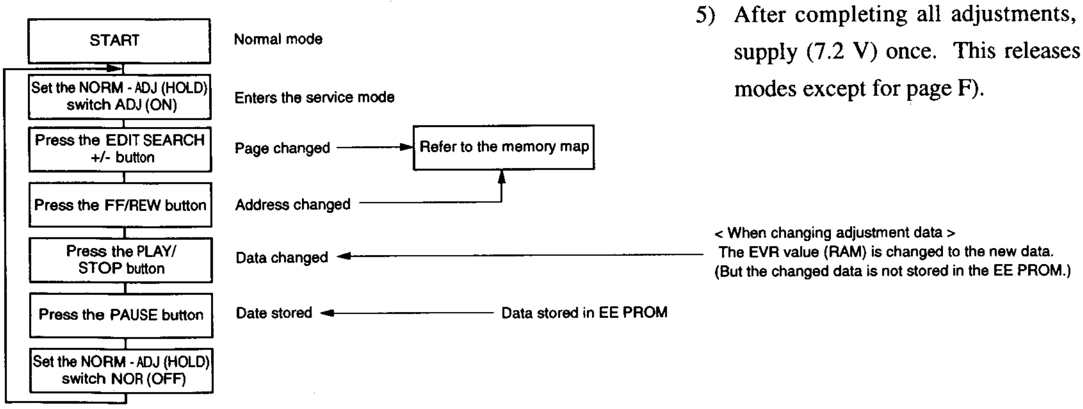
- Storing the data

  Press the PAUSE button to store the adjustment data (page F) into the non-volatile memory.

  (If the PAUSE button is not pressed after completing the adjustment, the new adjustment data will not be stored in the non-volatile memory.)

5) After completing all adjustments, turn off the main power supply (7.2 V) once. This releases the adjustment mode (all modes except for page F).

[Sequence of Service Modes Using the Adjustment Remote Commander]



START
Normal mode
Set the NORM - ADJ (HOLD) switch ADJ (ON)
Enters the service mode
Press the EDIT SEARCH +/- button
Page changed
Refer to the memory map
Press the FF/REW button
Address changed
Press the PLAY/ STOP button
Data changed
< When changing adjustment data >
The EVR value (RAM) is changed to the new data.
(But the changed data is not stored in the EE PROM.)
Press the PAUSE button
Date stored
Data stored in EE PROM
Set the NORM - ADJ (HOLD) switch NOR (OFF)

Command Name	Command Function	Normal LANC Command
Page Up	Page + 1	Edit Search +
Page Down	Page - 1	Edit Search -
Direct Page Set	Sets the specified page	Event Clear
Address Up	Address + 1	Fast Forward
Address Down	Address - 1	Rewind
Data Up	Data + 1	Play Back
Data Down	Data - 1	Stop
Store	Stores data in the EE PROM.	Pause

2. Precautions when using the adjustment remote commander

Mishandling of the adjustment remote commander may erase the correct adjustment data which has already been stored in the memory. To prevent this, it is recommended that all adjustment data is noted down on the attached page F address list before starting adjustments in addition to all new adjustment data after the completion of each adjustment step.

Page F Address List

Note 1: Data already stored in the adjustment data memo column are fixed values.

Note 2: The initial adjustment data values are the values which exist immediately after the execution of "F Page Data Initialization" and "F Page Data Modification". These differ from the values which exist after all adjustment have been performed.

Note 3: There are cases where data has been entered into F page addresses between 8C and EF, but these are not related to the adjustments.

Address	Adjustment Data	
	Initial Value	Memo Column
00	00	00
01	00	00
02	00	00
03	04	04
04	10	10
05	E0	E0
06	10	10
07	00	00
08	04	04
09	00	00
0A	FF	
0B	08	
0C	00	
0D	00	
0E	00	
0F	00	
10	00	
11	00	
12	80	
13	40	
14	40	
15	80	
16	80	
17	9E	
18	80	
19	68	
1A	7E	
1B	85	
1C	80	
1D	64	
1E	80	
1F	AD	
20	9E	
21	87	
22	C6	
23	C1	
24	58	
25	60	
26	80	
27	80	
28	48	
29	40	
2A	80	
2B	80	
2C	40	
2D	00	
2E	2D	
2F	D3	
30	2D	
31	FD (FC)	
32	F3 (F4)	
33	00	
34	3C	
35	00	
36	3E	
37	E0	
38	8F	
39	6C	
3A	36	
3B	3C	
3C	A3	
3D	0D	
3E	8E	
3F	12	
40	47	
41	10	
42	80	
43	80	
44	64	64
45	46	46
46	00	00
47	55	55
48	80	80
49	7B	7B
4A	80	80
4B	78	78
4C	80	80
4D	92	92

( ): TR520E MODEL

Address	Adjustment Data	
	Initial Value	Memo Column
4E	80	80
4F	91	91
50	80	80
51	80	80
52	80	80
53	A8	A8
54	CC	CC
55	3C	3C
56	1B	1B
57	80	80
58	80	80
59	80	80
5A	79	79
5B	4C	4C
5C	1A	1A
5D	36 (32)	36 (32)
5E	23	23
5F	45	45
60	16	16
61	A2 (A1)	A2 (A1)
62	A3	A3
63	BA	BA
64	2C (18)	2C (18)
65	09	09
66	66	66
67	07 (03)	07 (03)
68	66 (6B)	66 (6B)
69	9F	9F
6A	66	66
6B	66 (6C)	66 (6C)
6C	59 (5C)	59 (5C)
6D	83	83
6E	67	67
6F	5D	5D
70	5C	5C
71	4A	4A
72	1E (20)	1E (20)
73	5C	5C
74	3A (3C)	3A (3C)
75	33	33
76	02	02
77	1B	1B
78	E8	E8
79	28	28
7A	0D	0D
7B	6A	6A
7C	58	58
7D	44	44

( ) : TR520E

Address	Adjustment Data	
	Initial Value	Memo Column
7E	33	33
7F	05	05
80	07	07
81	03	03
82	40	40
83	56	56
84	5D	5D
85	60	60
86	04	04
87	0F	0F
88	10	10
89	0A	0A
8A	38	38
8B	B0	B0
8C～E3		
E4～EF		
F0～FF		

1-2. CAMERA SYSTEM ADJUSTMENTS

1. Adjustment points when major parts have been replaced

When the CCD imager or lens block is replaced, adjust the items indicated by ○ in the following table.

	When the CCD imager is replaced	When the lens block is replaced
HALL adjustment		○
CCD imager compensation data writing	○	
Flange back adjustment	○	○
IRIS IN/OUT adjustment	○	○
MAX GAIN adjustment	○	
Color reproduction adjustment	○	
Auto white balance reference data input	○	
Auto white balance adjustment	○	

2. Power supply voltage check (VC-167P board)

Subject	Any subject
Measuring equipment	Digital voltmeter
DIG5V check	
Measurement Point	CN300 ㊶ Pin (CN300 ㊳, ㊴ Pin: MT GND)
Specification Value	4.86±0.15Vdc
DIG3.5V check	
Measurement Point	CN300 ㉚ Pin (CN300 ㉛, ㉜ Pin: VTR GND)
Specification Value	3.16±0.1Vdc
CAM15V check	
Measurement Point	CN701 ⑯ Pin (CN701 ① Pin: GND)
Specification Value	14.95±0.4Vdc
CAM-8.5V check	
Measurement Point	CN701 ⑭ Pin (CN701 ① Pin: GND)
Specification Value	-8.5±0.5Vdc

Check procedure

1) Check that all power supply voltages satisfy the specified value.
   If not, refer to "Video circuit, Power supply block adjustment".

3. Preparation for adjustment

Objective: Make sure that the camera can be operated from the LANC line even if the mode control microprocessor's A/D port is left open.

Mode	Any Mode
Measuring Equipment	Remote controller RM-95 upgraded for LANC
Adjustment Page	Page 6, page F
Adjustment Address	00, 02

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Turn the main power switch ON.
2	6	00	01	After setting the data, press the PAUSE button.
3	F	02	21	After setting the data, press the PAUSE button.
4				Turn off the UNREG power supply once, then turn it on.
5	6	00	00	After setting the data, press the PAUSE button.

Note 1: If data 01 is set to page 6, address 00, the adjustment for page F, address 01 to 8B can also be performed.

Note 2: When all adjustments of the camera system is completed, set data 00 to the page F, address 02.

4. Initialization of page F data

Note 1: Execute the initialization of page F only when the non-volatile memory (VC-167P board IC401 EE PROM) is replaced.

Note 2: If the page F data has been initialized, all adjustment items of the camera section must be executed again.

Initializing procedure:

Order	Page	Address	Data	Procedure
1				Turn OFF and ON the main power supply. (Preparation)
2	6	00	01	After setting the data 01 to the address, press the PAUSE button.
3	6	11		Confirm that the data is 00.
4	6	01	2D	After setting the data, Press the PAUSE button. (Execution of page F data initialization. By this operation, all the data from address 01 to EF are initialized.)
5	6	11		Confirm that the data is 01.

Works required after initialization

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, Press the PAUSE button.
2	6	00	00	After setting the data, Press the PAUSE button. (End)
				Perform the next item "5. Page F Data Modifications", then execute all adjustment items of the camera section.

Related Adjustments:

All items of camera adjustment excluding "28 MHz Crystal Oscillator Adjustment".

5. V SUB adjustment

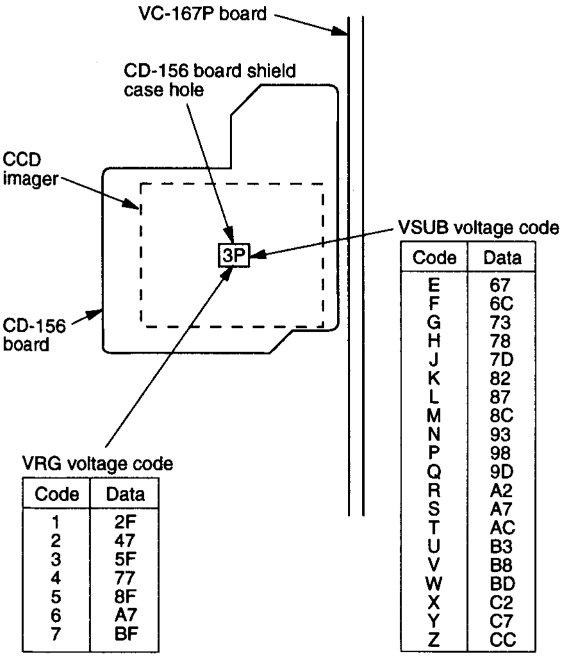
Subject	Not required
Adjustment Page	F
Adjustment Address	26

Related Adjustments:

"MAX gain adjustment", "Auto white balance reference data input", "Auto white balance adjustment", "Color reproductivity adjustment".

Adjustment method:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	26		Reading a voltage code of V SUB indicated by CCD imager then input data of a table (Fig.6-1-7)
3	F	26		Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)



VSUB voltage code

Code	Data
E	67
F	6C
G	73
H	78
J	7D
K	82
L	87
M	8C
N	93
P	98
Q	9D
R	A2
S	A7
T	AC
U	B3
V	B8
W	BD
X	C2
Y	C7
Z	CC

VRG voltage code

Code	Data
1	2F
2	47
3	5F
4	77
5	8F
6	A7
7	BF

Fig 6-1-7

6. VRG adjustment

Subject	Not required
Adjustment Page	F
Adjustment Address	27

Adjustment method:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	27		Reading a voltage code of V SUB indicated by CCD imager then input data of a table (Fig.6-1-7)
3	F	27		Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)

7. Page F data modification

All the data of page F are automatically initialized if the initialization is executed. However, among the initialized data, the following addresses require manual modification of data after the page F data is initialized.

Modification procedure:

Order	Page	Address	Data		Procedure
			TR340E model	TR520E model	
1	6	00		01	After setting the data, Press the PAUSE button. (Preparation)
2	F	04	90	60	Set each data to each address, and press the PAUSE button.
		07	—	07	
		08	14	24	
		31	—	FC	
		32	—	F4	
		54	AA	AA	
		5D	—	32	
		5E	24	24	
		60	—	—	
		61	A4	A8	
		63	85	82	
		64	—	20	
		65	—	00	
		67	—	03	
		68	—	6B	
		6B	—	6C	
		6C	—	5C	
		72	—	20	
		74	—	3C	
		78	—	D8	
		7C	5C	—	
		7D	62	—	
		8B	D0	D0	
		E4-EF	00	00	
		F5	A8	A8	
		F6	5E	5E	
		F7	C4	94	
		87	—	1F	
		88	—	20	
		89	—	02	
		8A	—	04	

8. 28 MHz crystal oscillator adjustment

Purpose: Adjusts 28 MHz crystal controlled oscillation for synchronizing clock.

Adjustment error: Loss of synchronization or loss of color

Subject	Not required
Measurement Point	IC201 (54) pin
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	25
Specification	4433618.75±17Hz

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	25		Change the data using PLAY, STOP buttons until the frequency satisfies the specification.
3	6	00	00	After setting the data, press the PAUSE button. (End)

Reference: Conversion between the hexadecimal number and decimal number.

In some adjustment items, data appears in hexadecimal numbers on the DDS display or on the adjustment remote commander. Maintenance engineers are expected to convert the displayed hexadecimal numbers to the corresponding decimal numbers using the following conversion table.

Make a required calculation described in each adjustment item. Then re-convert the result of calculation back from the decimal numbers to the corresponding hexadecimal numbers using the following conversion table.

Hexadecimal-Decimal Conversion Table

Lower digit of hexadecimal / Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (C)	D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A(A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①→ B(b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C(C)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D(d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E(E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F(F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: The characters shown in the parenthesis ( ) shows the display on the adjustment remote commander.
(Example) If the DDS display or the adjustment remote commander shows BD (bd);
Because the upper digit of the hexadecimal number is B (b), and the lower digit is D (d), the meeting point "189" of (1) and (2) in the above table is the corresponding decimal number.

< How to convert the decimal number to hexadecimal number >

The decimal numbers are divided into following three categories. Calculation method is different in three categories respectively.

(1)0~255 → 00h~FFh
(2)256~4095 → 0100h~0FFFh
(3)4096~65536 → 1000h~FFFFh

If the decimal number fall into the category (1);

1) Divide the decimal number by 16. Result is "A".
2) Take the integer portion of the number "A" as "B".
3) Calculate the equation (A-B) x 16. Result is "C".
4) "B" is the second digit number of the hexadecimal number and "C" is the first digit number of the hexadecimal number. (BC)h

(Example)

If the decimal number is "189";

1) $189 \div 16 = \underline{11}.8125$ ....(A)
↑
2) (B)
3) $(11.8125 - 11) \times 16 = 13$ ....(C)
4) 189 → (BD)h is obtained.

If the decimal number fall into the category (2);

1) Divide the decimal number by 256. Result is "A".
2) Take the integer portion of the number "A" as "B".
3) Calculate the equation (A-B) x 256. Result is "C".
4) Take the integer portion of the number "C" as "D".
5) Calculate the equation (C-D) x 16. Result is "E".
6) "B" is the third digit number, "D" is the second digit number and "E" is the first digit number of the hexadecimal number. (BDE)h

(Example)

If the decimal number is "2100";

1) $2100 \div 256 = \underline{8}.203125$ (A)
↑
2) (B)
3) $(8.203125 - 8) \times 256 \div 16 = \underline{3}.25$ ....(C)
↑
4) (D)
5) $(3.25 - 3) \times 16 = 4$ ....(E)
6) 2100 → (834)h is obtained.

If the decimal number fall into the category (3);

1) Divide the decimal number by 4096. Result is "A".
2) Take the integer portion of the number "A" as "B".
3) Calculate the equation (A−B) × 4096 ÷ 256. Result is "C".
4) Take the integer portion of the number "C" as "D".
5) Calculate the equation (C−D) × 256 ÷ 16. Result is "E".
6) Take the integer portion of the number "E" as "F".
7) Calculate the equation (E-F) x 16. Result is "G". (Round the number "G" to count fractions of 0.5 and over as a unit and cut away the rest.)
8) "B" is the fourth digit number, "D" third digit number, "F" is the second digit number and "G" is the first digit number of the hexadecimal number. (BDFG)h

(Example)

If the decimal number is "31814";

1) $31814 \div 4096 = 7.7670898$ ....(A)
↑
2) (B)
3) $(7.7670898 - 7) \times 4096 \div 256 = 12.273436$ ....(C)
↑
4) (D)
5) $(12.273436 - 12) \times 256 \div 16 = 4.374976$ ....(E)
↑
6) (F)
7) $(4.374976 - 4) \times 16 = 5.999616$
(Round the number to count fractions of 0.5 and over as a unit and cut away the rest.)
↓
8) 6 ....(G)
9) 31814 → (7C46)h is obtained.

< How to convert the hexadecimal number to decimal number >

If the hexadecimal number is (ABCD)h, the decimal number is calculated by the following equation.

$(A \times 4096) + (B \times 256) + (C \times 16) + (D \times 1) =$ decimal number

(Example) If the hexadecimal number is "(3BA4)h":

$(3 \times 4096) + (11 \times 256) + (10 \times 16) + (4 \times 1) = 15268$

9. HALL adjustment

Purpose: Variation of the HALL element outputs is removed by adjusting amplifier gain and offset. The HALL elements detect the lens iris position.

Adjustment error: Oscillation of lens iris, or incorrect white balance indoor and outdoor.

Subject	Not required
Measurement Point	DDS display on the EVF or monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	2A 2B
Specification	13 to 17h when iris is opened. 77 to 7Bh when iris is closed.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	02	21	After setting the data, press the PAUSE button.
3				Turn off the UNREG power supply once, then turn it on.
4	6	00	01	After setting the data, press the PAUSE button.
5	6	02	03	After setting the data, press the PAUSE button.
6	6	01	03	After setting the data, press the PAUSE button.
7	F	2A	40	After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W_2.
8	F	2A	30	After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W_1.
9	6	01	01	After setting the data, press the PAUSE button.
10	F	2A	30	After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is K_1.
11	F	2A	40	After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is K_2.
12				Convert the data W_1, W_2, K_1 and K_2 into the decimal numbers. The result decimal numbers are W_1', W_2', K_1' and K_2'. (Use the < How to convert the hexadecimal number to decimal number > or "Hexadecimal-Decimal Conversion Table".Calculate the following equation (decimal number calculation) to obtain X_1'.
13				$A' = W_2' + K_1' - W_1' - K_2'$ ....equation 1 $B' = W_1' - K_1'$ ....equation 2 $X_1' = \frac{1600 + (48 \times A') - (16 \times B')}{A'}$ ....equation 3
14				Convert the decimal number X_1' to the hexadecimal number to obtain X_1. (Round the number X_1 to count fractions of 0.5 and over as a unit and cut away the rest.)
15	F	2A		Set the data X_1 (obtained at step 14).
16				Press the PAUSE button.
17	F	2B		Change the data using the PLAY and STOP until 15 appears on the DDS display.
18				Press the PAUSE button.
19	6	01	03	After setting the data, press the PAUSE button.
20				If the DDS display shows the data in the range from 77 to 7B, it indicates the end of adjustment, and proceed to the item "Processing after Adjustments". If it is not, use the DDS display data as W0 and proceed to step 21 and followings.

Note: Lower two digits of the data which is displayed at the right bottom of he EVF or TV monitor

Order	Page	Address	Data	Procedure
21				Convert the value W_0 to a decimal value to obtain the value W_0'.
22				Calculate the value X_2' from the following equation (decimal calculation). $C' = W_0' + K_1' - W_1' - 20$ ....equation 4 $X_2' = \frac{(100 - B') \times (X_1' - 48) + (48 \times C')}{C'}$ ....equation 5 (The values X_1' and B' are obtained from the equations 2 and 3 in step 13.)
23				Convert the value X_2' to a hexadecimal number to obtain X_2. (Round the number X_2 to count fractions of 0.5 and over as a unit and cut away the rest.)
24	F	2A		Set the data X_2 (which is the result of calculation in step 23).
25	F	2A		Press the PAUSE button.
26	F	2B		Change data using PLAY and STOP button until 79 appears on the DDS display.
27	F	2B		Press the PAUSE button.
28	6	01	01	After setting the data, press the PAUSE button.
29				Confirm that the DDS display shows the data in the range from 13 to 17.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	02	00	After setting the data, press the PAUSE button.
2	6	01	00	After setting the data, press the PAUSE button.
3	F	02	00	After setting the data, press the PAUSE button.
4				Turn off the UNREG power supply once, then turn it on.
5	6	00	00	After setting the data, press the PAUSE button. (End)

Related adjustments:

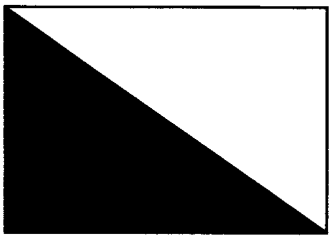
"IRIS IN/OUT adjustment"

10. Flange back adjustment

Purpose: Automatic flange back adjustment of inner focus lens.

Adjustment error: Loss of focus when switched between auto focus and manual focus.

Subject	Chart for flange back adjustment (Placed 2000 ±5 mm in front of the lens with illumination of 300 ±50 lux.)
Measurement Point	Confirm the focus on monitor TV.
Measuring Instrument	Confirm focus on monitor TV
Adjustment Page	F
Adjustment Address	3C 3D 3E 3F 40 41



(Chart for flange back adjustment)
(See Page 6-2)

Note: Confirm that the "Camera-shaking correction "and "Digital Zoom" are turned OFF. (TR520E MODEL)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Check that the center of the flange back adjustment chart coincides with that of the display on the monitor at both ends: TELE end and the WIDE end of the zoom lens.
2	6	00	01	After setting the data, press the PAUSE button. (Preparation)
3				Confirm that the data at page F, address 1B is the initial value, referring to the "Page F address list".
4	6	11		Confirm that the data is 00.
5	6	42	02	After setting the data, press the PAUSE button.
6	6	43	01	After setting the data, press the PAUSE button.
7	6	01	13	After setting the data, press the PAUSE button.
8	6	01	15	After setting the data, press the PAUSE button. The adjustment data is automatically input to page: F, addresses: 3C to 41.
9	6	11		Confirm that the data is 01.
10	6	42	00	After setting the data, press the PAUSE button.
11	6	43	00	After setting the data, press the PAUSE button.

Processing after Adjustments:

Order	Procedure
1	Turn the main power supply (7.2 V) OFF, then ON. (If this step is not performed, the camera will be out of focus.)

11. Flange back check

Subject	Siemens star (Placed 2000 ±5 mm in front of the lens with illumination of about 200 lux.)
Measurement Point	Confirm focus on monitor TV
Measuring Instrument	
Specification Value	Picture must have good focus at both TELE and WIDE ends.

Note 1: Confirm that the "Camera-shaking correction "and "Digital Zoom" are turned OFF. (TR520E MODEL)

Note 2: It is judged from the page A display on the adjustment remote commander if the picture has good focus while the auto focus is ON.

1) Set data: 0B to the page:6, address: 02.
2) Focus condition can be known from the page A display.

A: 00 : XX
└─See the right table.
(Bit 2 value 0 : Picture is out of focus.
1 : Picture is in focus.)

Display on the adjustment remote commander	Bit values bit2
0	0
1	0
2	0
3	0
4	1
5	1
6	1
7	1
8	0
9	0
A(A)	0
B(b)	0
C(C)	1
D(d)	1
E(E)	1
F(F)	1

In focus

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Place a Siemens star at 2 meters in front of lens.
2				Decrease illumination to the chart down to a point before noise appears on monitor TV, in order to fully open the IRIS.
3	6	42	02	After setting the data, press the PAUSE button.
4	6	43	01	After setting the data, press the PAUSE button.
5				Shoot the Siemens star at TELE end.
6				Confirm that the image is in focus. (Note2).
7	6	21	10	After setting the data, press the PAUSE button.
8				Shoot the Siemens star at WIDE end.
9				Confirm that the image is in focus.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	02	00	After setting the data, press the PAUSE button.
2	6	21	00	After setting the data, press the PAUSE button. (END)
3	6	42	00	After setting the data, press the PAUSE button.
4	6	43	00	After setting the data, press the PAUSE button.

12. Picture frame setting

Subject	Color bar chart standard picture frame
Measurement Point	VIDEO output terminal (Terminated in 75Ω)
Measuring Instrument	Oscilloscope and monitor TV
Specification Value	A=B, C=D, t=0±0.1msec

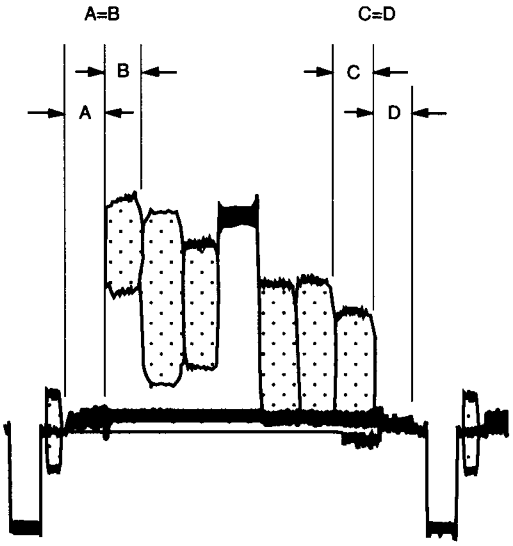
Note : Confirm that the "Camera-shaking correction "and "Digital Zoom" are turned OFF. (TR520E MODEL)

Setting procedure:

Order	Procedure
1	Turn OFF the auto focus.
2	Adjust the focus using the focus knob.
3	Adjust direction and zoom of camera so that the picture frame is adjusted as specified by Fig. 6-1-8 and Fig. 6-1-9.
4	Write down markings on the picture frame on the monitor screen. If the “color bar chart standard picture frame” or “white pattern standard picture frame” is specified in the following adjustment items, obtain this picture frame.

Confirm with an oscilloscope

1. Horizontal rate



2. Vertical rate

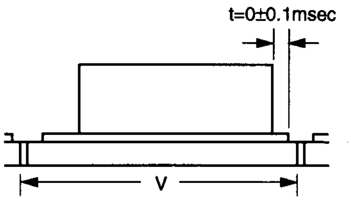


Fig. 6-1-8

Confirm on TV monitor (underscanned display)

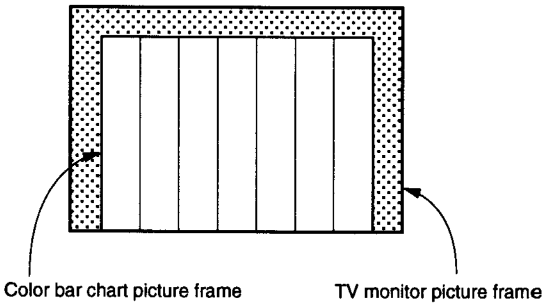


Fig. 6-1-9

13. Color reproduction adjustment

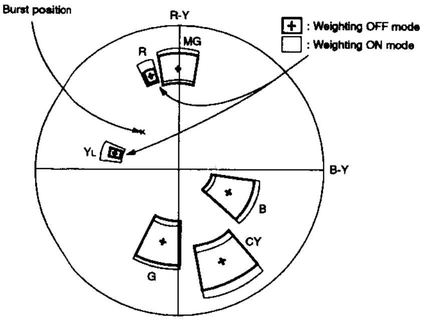
Purpose:	Adjust the three primary color matrix coefficients for correct color reproduction.
Adjustment error:	Poor color reproduction.

Subject	Color bar chart standard picture frame
Measurement Point	VIDEO output terminal (Terminated in 75 Ω)
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	2D, 2E, 2F, 30
Specification Value	Each spot must be located within the specified color reproduction zone on a vectorscope display.

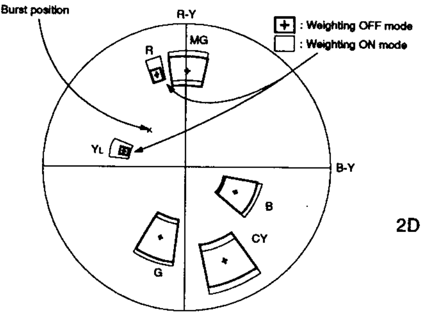
Note : Confirm that the "Camera-shaking correction "and "Digital Zoom" are turned OFF. (TR520E MODEL)

Adjustment procedure:

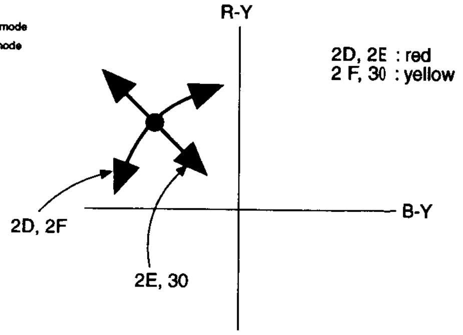
Order	Page	Address	Data	Procedure	Condition
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)	
2	6	42	02	After setting the data, press the PAUSE button.	
3	6	03	00	After setting the data, press the PAUSE button. (Setting)	
4	6	01	37	After setting the data, press the PAUSE button.	
5	F	2D, 2E 2F, 30		Change the data so that each spot must be located within the specified color reproduction zone on a vectorscope display. Press the PAUSE button for each address.	Weighting OFF mode.


Burst position
R-Y
☐+ : Weighting OFF mode
☐ : Weighting ON mode
MG
R
YL
B-Y
B
CY
G

×10 MODEL (TR340E)


Burst position
R-Y
☐+ : Weighting OFF mode
☐ : Weighting ON mode
MG
R
YL
B-Y
B
CY
G

×24 MODEL (TR520E)


R-Y
2D, 2E : red
2 F, 30 : yellow
B-Y
2D, 2F
2E, 30

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	6	03	10	After setting the data, press the PAUSE button. (Setting)
3	6	42	00	After setting the data, press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)

Related Adjustments:

"Auto white balance reference data input"

"Auto white balance adjustment"

14. IRIS IN/OUT adjustment

Purpose:	Measure the light level and write into EE PROM for indoor/outdoor identification in auto white balance.
Adjustment error:	Incorrect white balance.

Subject	White pattern standard picture frame
Measurement Point	EVF or DDS display of monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3A 3B

Note : Confirm that the "Camera-shaking correction "and "Digital Zoom" are turned OFF. (TR520E MODEL)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	02	21	After setting the data, press the PAUSE button.
3				Turn off tje UNREG power supply once, then turn it on.
4	6	00	01	After setting the data, press the PAUSE button.
5	6	11		Confirm that the date is 00,,
6	6	01	4B	After setting the data, press the PAUSE button.
7	6	01	49	After setting the data, press the PAUSE button.
8	6	11		If data is 01, this is the end of data read.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	F	02	00	After setting the data, press the PAUSE button.
3				Turn off tje UNREG power supply once, then turn it on.
4	6	00	00	After setting the data, press the PAUSE button. (End)

The page: A data appears on DDS of monitor TV.

15. MAX gain adjustment

Purpose: Sets the minimum illumination level.
Adjustment error: Normal video level cannot be obtained at low illumination (dark).

Subject	White pattern standard picture frame
Measurement Point	VIDEO output terminal (Terminated in 75 Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	2C
Specification Value	A =615 ± 10 mV (TR340E MODEL) A =390 ± 10 mV (TR520E MODEL)

Note : Confirm that the "Camera-shaking correction "and "Digital Zoom" are turned OFF. (TR520E MODEL)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	01	19	After setting the data, press the PAUSE button.
3	F	2C		Change data using PLAY and STOP buttons so that the Y signal level (A) satisfies the specification. The data which satisfies the Y signal level (A) is called "D2c".
4 5	F	2C		Set the data "D2c" and press the PAUSE button (TR520E MODEL).
	F	2C		Calculate to subtract 28h from "D2c" (data ="D2c" − 28h). Set result of the calculation and press the PAUSE button. (TR340E MODEL).

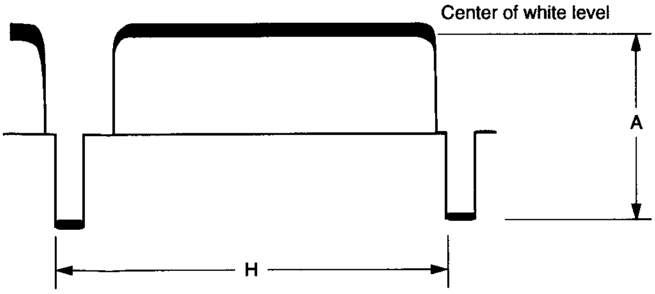


Fig. 6-1-10.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	6	00	00	After setting the data, press the PAUSE button. (End)

16. Auto white balance reference data input

Subject	White pattern standard picture frame
Adjustment Page	F
Adjustment Address	33, 34, 35, 36

Note 1: Confirm that the "Camera-shaking correction "and "Digital Zoom" are turned OFF. (TR520E MODEL)

Note 2: The “Color reproduction adjustment” must have been completed before making this adjustment.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Turn the main power OFF then to ON.
2				Shoot a white pattern with the standard picture frame.
3	6	00	01	After setting the data, press the PAUSE button.
4	6	11		Confirm that data is 00.
5	6	01	11	After setting the data, press the PAUSE button.
6	6	01	0D	After setting the data, press the PAUSE button. (Executes the auto white balance reference data input.)
7	6	11		If data is 01, this is the end of data read.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2				Execute “Auto white balance adjustment”.
3	6	00	00	After setting the data, press the PAUSE button. (End)

Related Adjustments:

Auto white balance adjustment

17. Auto white balance adjustment

Purpose: Adjust for correct auto white balance.

Adjustment error: Poor color reproduction.

Subject	White pattern standard picture frame
Filter	Color temperature correction filter C14
Measurement Point Measuring Instrument	EVF or DDS display on monitor TV
Adjustment Page	F
Adjustment Address	38 39
Specification Value	R ratio 2A80±40h B ratio 5E80±80h

Note 1: Make this adjustment after "Auto white balance reference data input" is completed.

Note 2: Confirm that the "Camera-shaking correction "and "Digital Zoom" are turned OFF. (TR520E MODEL)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation 1)
2	F	02	21	After setting the data, press the PAUSE button. (Preparation 2)
3				Turn off the UNREG power supply once, then turn it on.
4	6	00	01	After setting the data, press the PAUSE button.
5	6	01	35	After setting the data, press the PAUSE button.
6	6	02	04	After setting the data, press the PAUSE button. Sets the R ratio display mode.
7	F	38		Change data using the PLAY and STOP buttons until the R ratio data on the DDS display becomes the specification value. R ratio data = 2000h+10h×D_{F5} (D_{F5} = Page F, Address: F5 data)
8	6	02	05	After setting the data, press the PAUSE button. Sets the B ratio display mode.
9	F	39		Change data using the PLAY and STOP buttons until the B ratio data on the DDS display becomes the specification value. B ratio data = 80h+100h×D_{F6} (D_{F6} = Page F, Address: F6 data)
10				Press the PAUSE button.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	6	02	00	Releases the B ratio display mode.
3	F	02	00	After setting the data, press the PAUSE button. (End 2)
4				Turn off the UNREG power supply once, then turn it on.
5	6	00	00	After setting the data, press the PAUSE button. (End 1)

18. White balance check

Subject	White pattern standard picture frame
Filter	Color temperature correction filter C14 ND filter 1.0 and 0.3
Measurement Point	VIDEO output terminal (Terminated in 75Ω)
Measuring Instrument	Vectorscope
Specification Value	Fig. 6-1-11. A ~ C

Note : Confirm that the "Camera-shaking correction "and "Digital Zoom" are turned OFF. (TR520E MODEL)

Check procedure:

Order	Page	Address	Data	Procedure	Condition
1				Check that the lens is not covered by either filter.	
2	6	01	0F	After setting the data, press the PAUSE button.	
3				Check that the white luminance point is located within the circle shown in Fig. A.	Without filter.
4	6	01	00	After setting the data, press the PAUSE button.	
5	6	01	23	After setting the data, press the PAUSE button.	
6				Put the C14 filter on the lens.	
7				Check that the white luminance point is located within the circle shown in Fig. B.	C14 filter.
8				Remove the C14 filter and put ND filter 1.3 (1.0 + 0.3) on the lens.	
9				Check that the white luminance point is located within the circle shown in Fig. C.	ND Filter 1.3

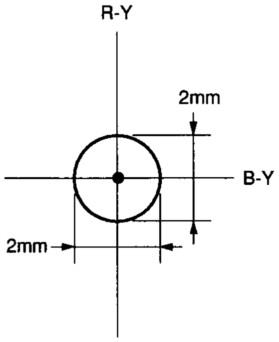


Fig. 6-1-11. A

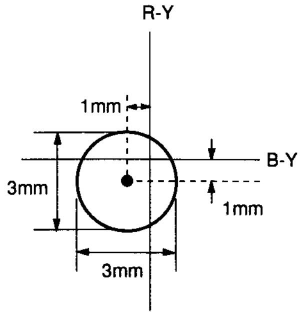


Fig. 6-1-11. B

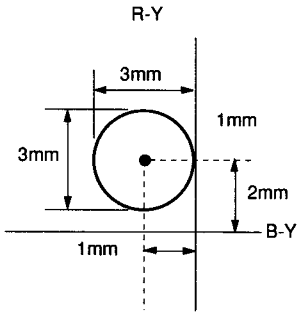


Fig. 6-1-11. C

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	6	00	00	After setting the data, press the PAUSE button. (End)

〔TR520E MODEL〕

19. Camera-shaking correction adjustment

The “Camera-shaking correction adjustment” is necessary only when the angular speed sensor is replaced. If microprocessors or circuit is replaced or repaired, this adjustment is not necessary. Make operation check only.

Subject	
Measurement Point	VIDEO output terminal (Terminated in 75Ω)
Measuring Instrument	Oscilloscope or TV monitor
Adjustment Page	F
Adjustment Address	42 43
Specification Value	Horizontal residual vibration ≦0.5μsec Vertical residual vibration ≦0.2msec

Note 1: Caution when replacing parts

The two types of parts: ENC05EA and ENC05EB are supplied. Use the same type of sensor as that of the defective sensor. If different type of either ENC05EA or ENC05EB is used, picture can vibrate vertically or horizontally during camera-shake correction. After replacement, make adjustment as described.

Note 2: Caution on angular speed sensor

The angular speed sensor has high precision vibrator inside. If the sensor is dropped, balance of the vibrator is lost resulting in faulty operation. Handle the sensor carefully.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	42	07	After setting the data, press the PAUSE button.
3	6	01	3F	After setting the data, press the PAUSE button.
4				Obtain the vertical data from the following equation using the value indicated on SE650 of the TZ-5 board as the sensor sensitivity value. (Result of calculation must be converted to hexadecimal value.) $[\text{Vertical data}]\ \text{Hex}=\dfrac{148\text{d}}{\text{sensor sensitivity value}}\times[\text{Hex}]$
5	F	42		Set the [Vertical data] Hex value to the page F, address 42 and press the PAUSE button.
6				Obtain the horizontal data from the following equation using the value indicated on SE651 of the TZ-5 board as the sensor sensitivity value. (Result of calculation must be converted to hexadecimal value.) $[\text{Horizontal data}]\ \text{Hex}=\dfrac{121\text{d}}{\text{sensor sensitivity value}}\times[\text{Hex}]$
7	F	43		Set the [Horizontal data] Hex value to the page F, address 43 and press the PAUSE button.
8				Confirm that “Camera-shaking correction adjustment” works correctly.
9	6	00	00	After setting the data, press the PAUSE button. (End)
10	6	42	00	After setting the data, press the PAUSE button.
11	6	01	00	After setting the data, press the PAUSE button.

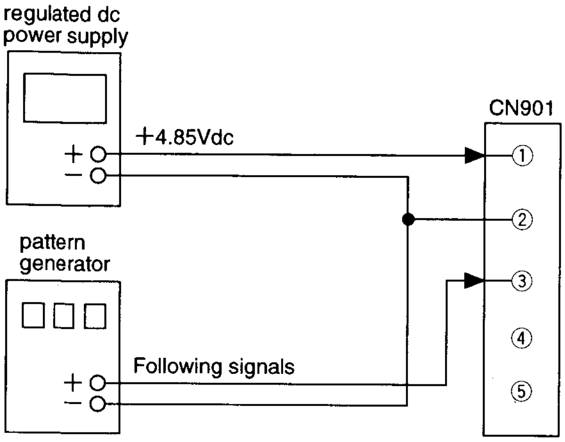
Note : Phase of the residual vibration must be in the same phase as that while no correction is applied.

20. Electronic viewfinder system adjustments (VF-102P board)

Note : About 2200V dc is applied to CRT anode and about 200 Vdc to the grid. Be careful not to touch them. If hand touches them, there is danger of electric shock

Preparation :

1. Disconnect a flexible board from CN901 on VF-87P board.
2. Connect equipments as follows.



Required signals

1. Monoscope signal

Output amplitude:	1.0 V p-p (75Ω terminated)
Horizontal resolution:	600 TV lines or more
Vertical resolution:	350 TV lines or more

2. Dot pattern signal

Output amplitude	1.0 V p-p (75Ω terminated)

3. Contrast signal

Output amplitude	0.5 V p-p (75Ω terminated)
fH:	15.625kHz
fV:	50Hz

Others: Complies with PAL. (Refer to Fig. 6-1-12.)

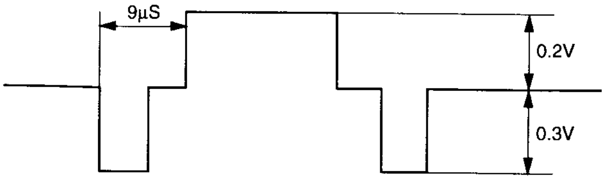


Fig. 6-1-12

20-1. Power supply voltage check

Measuring Instrument	Digital voltmeter
EVF5V	
Measurement Point	CN901 Pin-1
Specification Value	4.85±0.01Vdc

20-2. Horizontal and vertical position

Purpose: Maintains horizontal position.

Adjustment error: Horizontal position cannot be maintained.

Signal	Monoscope signal
Adjustment	
Specification Value	Overscan 7±3% (horizontal) (one side) Overscan 7±5% (vertical) (one side)

Adjustment procedure:

Order	Procedure
1	Confirm that the horizontal and vertical picture sizes satisfy the specification values.

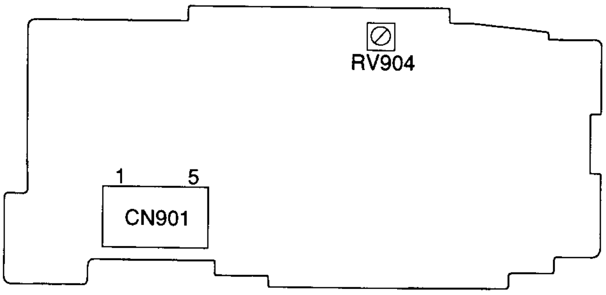
20-3. BRIGHT adjustment

Signal	Contrast signal
Adjustment	RV904
Specification Value	19±4cd/m^2

Adjustment procedure:

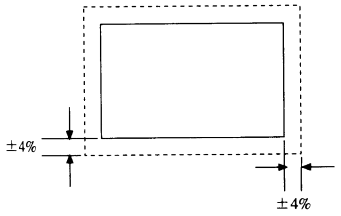
Order	Procedure
1	Brightness of the dark portion of the contrast signal satisfies the specification value.
2	heck by inputting the character generator signal that too much halation does not exist.

VF-102P BOARD (SIDE A)



20-4. Centering adjustment

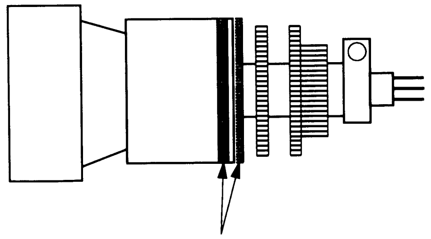
Signal	Monoscope signal
Adjustment	DY centering
Specification Value	±4%



Adjustment procedure:

Order	Data Procedure
1	Adjust DY centering adjustment ring so that margins at top, bottom, right and left are equal.

Note: The centering position is affected by earth magnetism. Rotate the camera 360 degrees and find the amount of centering change. Make the adjustment to the center of the change.


Centering adjustment ring

20-5. Focus adjustment

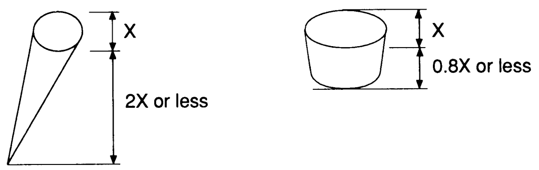
Signal	Monoscope signal
Adjustment	DY focus ring
Specification Value	Horizontal resolution is 350 lines or more.

Adjustment procedure:

Order	Procedure
1	Adjust focus ring for optimum focus. Confirm that the horizontal resolution satisfies the specification.

20-6. Diffraction adjustment

Signal	Dot pattern, Monoscope signal
Adjustment	DY diffraction adjustment ring
Specification Value	Refer to the illustration below.

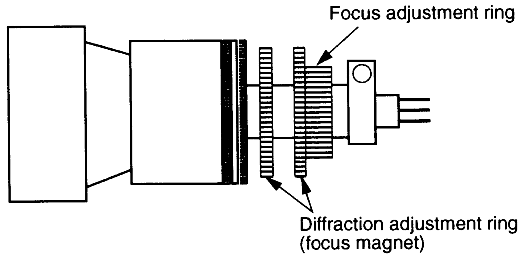

X
2X or less
X
0.8X or less

Adjustment procedure:

Order	Procedure
1	Adjust the diffraction adjustment ring so that tail of a dot must be smaller than 2 times of dot diameter, or the fan-shaped diffraction must smaller than the dot diameter.
2	If the focus and centering are affected by this adjustment, input monoscope signal and repeat focus and centering adjustments.

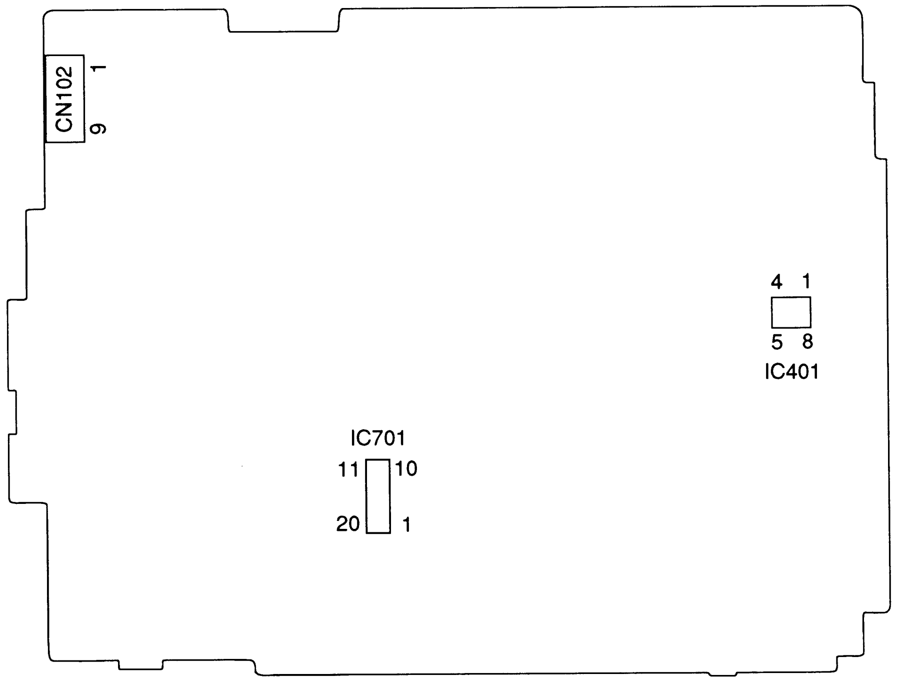
Related Adjustments:

Focus adjustment
Centering adjustment

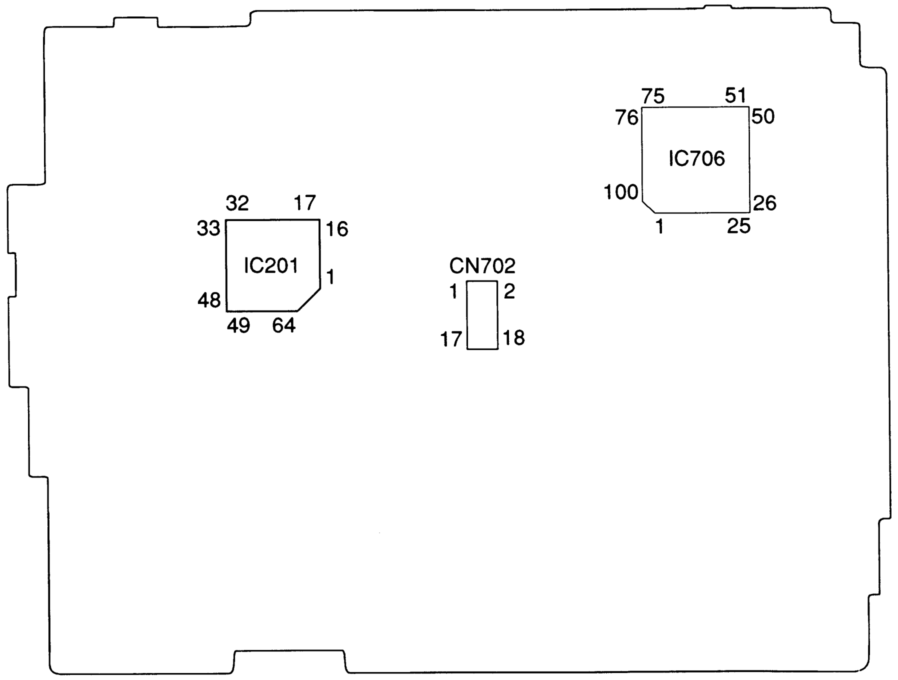

Focus adjustment ring
Diffraction adjustment ring
(focus magnet)

ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VC-167P BOARD (SIDE A)


CN102
1
9
4 1
5 8
IC401
IC701
11
10
20
1

VC-167P BOARD (SIDE B)


75
51
76
50
IC706
100
26
1
25
32
17
33
16
IC201
1
48
49
64
CN702
1
2
17
18

6-2. MECHANISM SECTION ADJUSTMENTS

Refer to the separate “8 mm Video Mechanism Section Adjustment Manual Ⅶ B Mechanism ” for adjustment, check procedure and mechanical parts replacement.

2-1. HOW TO OPERATE THE MECHANISM AFTER THE CASSETTE COMPARTMENT IS REMOVED

1. How to load a cassette tape:

1) Refer to “1. Disassembly” and turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
2) Connect the adjustment remote commander and set the NORM - ADJUST (HOLD) switch to ADJUST (ON) position.
3) Check that the main power is being supplied.
4) Select page: 6, address: 00, set data :01 and press the PAUSE button.
5) Select page: F, address: 02, set data: 01 and press the PAUSE button.
6) Turn off the power supply once, then turn it on.
7) Set the NORM - ADJUST (HOLD) switch to NORM (OFF) position. (The adjustment remote commander can be disconnected hereafter.)
8) Press the push-switch-1 knob in the direction of arrow which sets the machine into loading mode.
   I PB, FF/REW and CUE/REV operations are possible.
9) After completing all steps of above operation, be sure to perform “4. Processing after operation”.

2. How to establish RECORD mode:

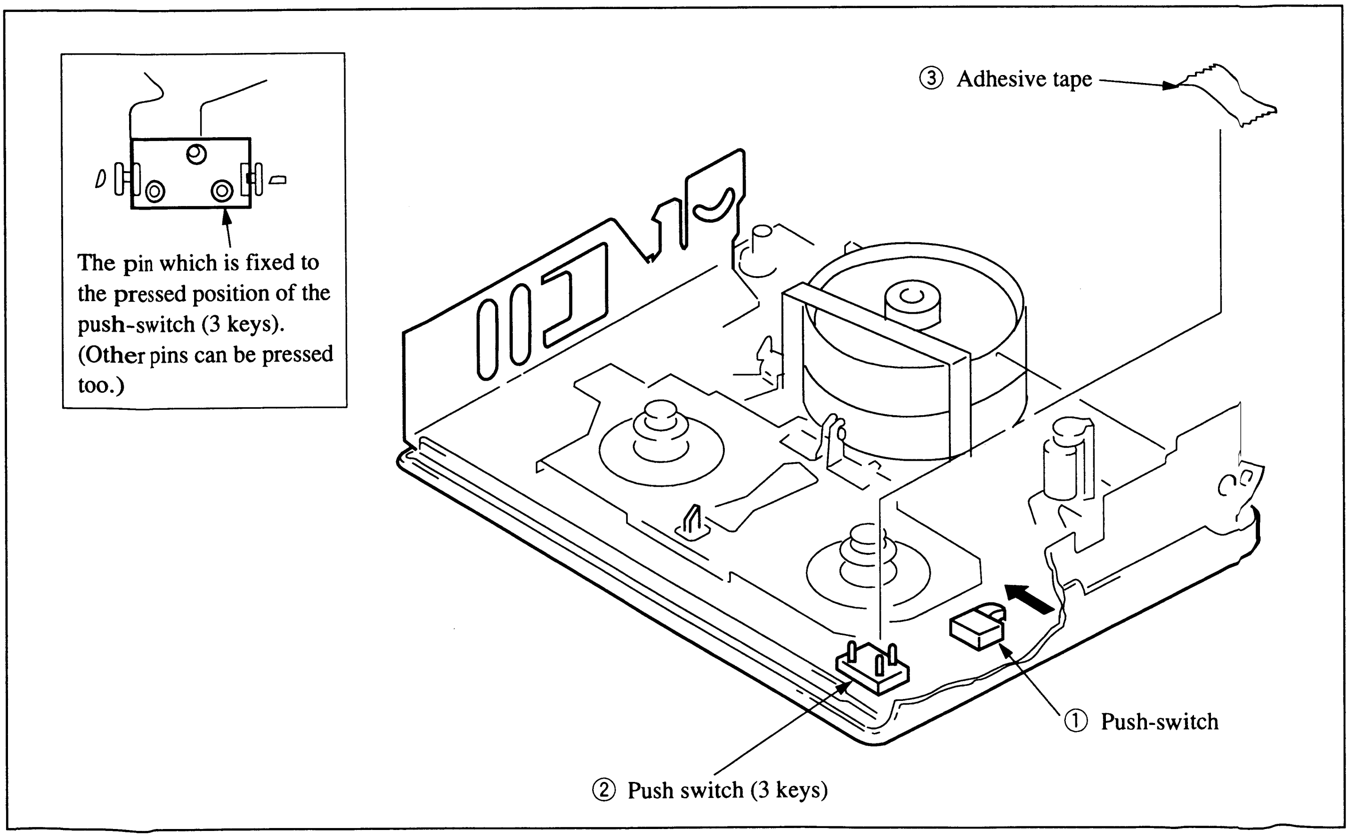
1) Press pin of the push-switch 2 (ON state) and keep the ON state by fixing with adhesive tape.
2) Turn the main power switch ON (select VTR or CAMERA position of camera).
3) Set the RECORD switch to ON.
   (When the test mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

1) Press the EJECT switch to ON.

4. Processing after operation

1) Connect the adjustment remote commander and set the NORM - ADJUST (HOLD) switch to ADJUST (ON) position.
2) Select page 6, address: 00, set data: 01 and press the PAUSE button.
3) Select page: F, address: 02, set data: 00 and press the PAUSE button.
4) Remove the power supply to the machine.



The pin which is fixed to the pressed position of the push-switch (3 keys). (Other pins can be pressed too.)

2-2. TAPE PATH ADJUSTMENT

Purpose: Adjusts the head linearity.

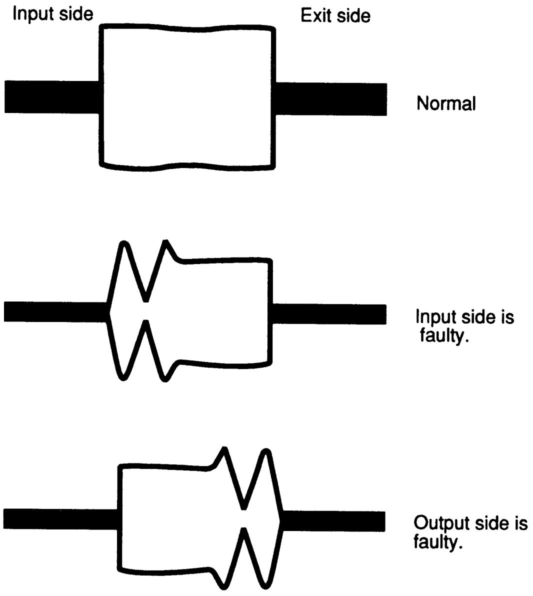
Adjustment Error: Noise appears on top and bottom of display when playing back the tape recorded by other machines.

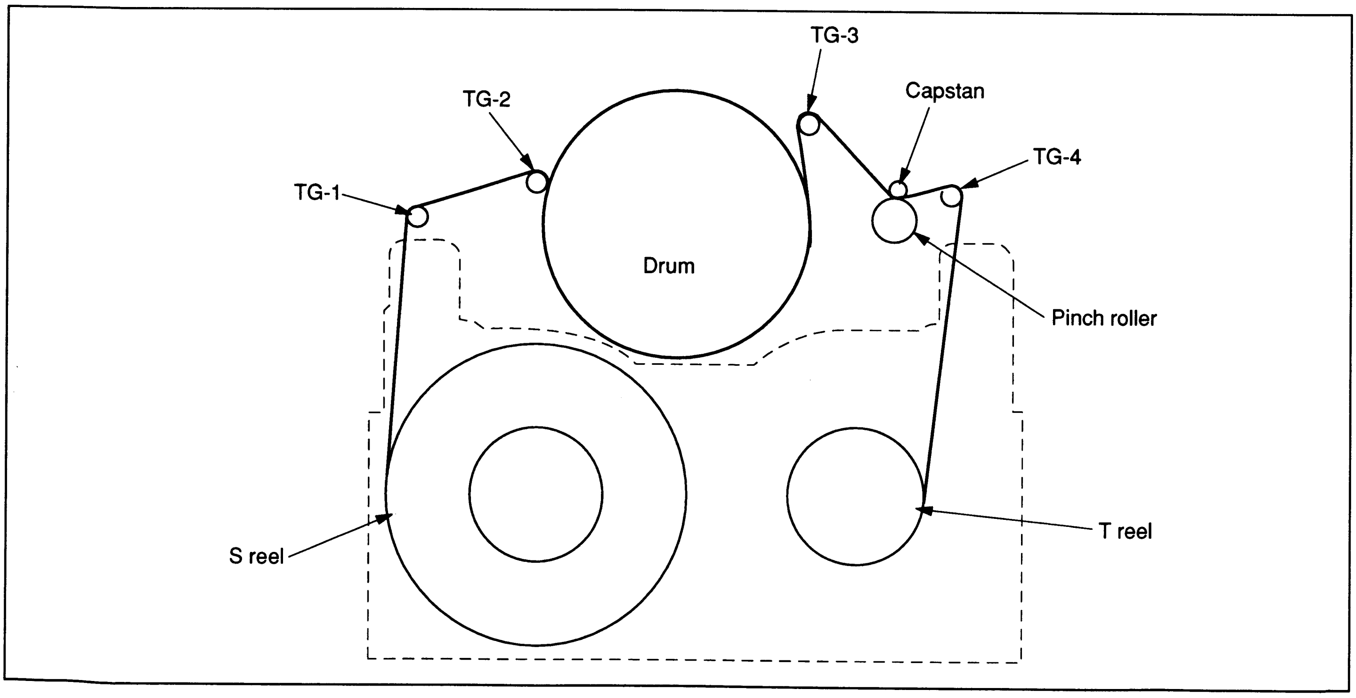
1. Preparations for adjustments

1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
2) Connect the adjustment remote commander to the REMOTE terminal (JACK block).
3) Set the NORM - ADJUST (HOLD) switch to ADJUST (ON) position.
4) Check that the main power is being supplied.
5) Select page: 6, address: 00, set data :01 and press the PAUSE button.
6) Select page: F, address: 02, set data: 03 and press the PAUSE button.
7) Turn off the power supply once, then turn it on.
8) Connect an oscilloscope.
   CH1: VC-167P board CN102 pin ①.
   External trigger: VC-167P board CN102 pin ⑧.
9) Playback the tracking alignment tape (WR5-1CP).
10) Check to see that RF waveform is flat at input and exit sides on oscilloscope.
    If it not flat. Tape Path Adjustment” of the 8 mm Video Mechanism Section Adjustment Manual Ⅶ B Mechanism .
11) After completing the adjustment, perform “2-1-4. Processing after operation”.

VC-167P board CN102

1	PB RF
2	REC 2
3	GND
4	EMPH IN
5	CAM Y IN
6	DEEMPH OUT
7	BPF ADJ
8	RF SWP
9	CAP FG





6-3. VIDEO SECTION ADJUSTMENT

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 6-64.

Perform the video section adjustment in the sequence as described.

[Adjustment sequence]

1) Servo system adjustment
    1.SYNC LEVEL/BURST LEVEL adjustment.
    2.Switching position adjustment
    3.Capstan FG offset adjustment
2) Playback frequency response characteristics adjustment
3) DEMD OUT adjustment
4) YD OUT LEVEL adjustment
5) Chroma level check
6) PB Y level adjustment
7) FE OSC check
8) Emphasis input level adjustment
9) Y FM deviation adjustment
10) Y FM carrier frequency adjustment
11) Chroma emphasis fo adjustment
12) REC Y level adjustment
13) REC L level adjustment
14) REC C level adjustment

3-1. PREPARATIONS BEFORE ADJUSTMENT

The following measuring equipment are used for video section adjustment.

3-1-1. Equipment required

1) Monitor TV
2) Oscilloscope, dual trace, 30 MHz bandwidth or more with delay mode function.
   (Use 10:1 probe unless otherwise specified.)
3) Frequency counter
4) Digital voltmeter
5) Audio generator
6) Audio level meter
7) Audio distortion meter
8) Audio attenuator
9) Regulated power supply
10) alignment tape
   - For tracking adjustment (WR5-1CP)
     Parts code: 8-967-995-07
   - For normal mode video frequency response adjustment (WR5-6C)
     Parts code: 8-967-995-17
   - For confirmation of normal mode operation
     for SP (WR5-5CSP)
     Parts code: 8-967-995-47
     or (WR5-4CSP)
     Parts code: 8-967-995-46
     for LP (WR5-4CL)
     Parts code: 8-967-995-56

3-1-2. Precautions on adjustment

The EVF (electronic viewfinder) is not necessary for video section adjustment.
Remove the following connector to remove the EVF.
1. CF-43 board CN481 (pin-8)

The audio board (MA-265) board is not necessary except for "Audio System Adjustments". Remove the following connectors.
1. VC-167P board CN060 (pin-12)

After completing all adjustments, release the adjustment mode by either of the following two methods.

1) Remove the lithium battery. (In this case, data time and menu setting by users are erased. Input these data again.)
2) Return the data of the address: 00 on page:6 to 00. If the page: 2 data is changed, return the data to the original value.

3-1-3. Adjustment connector (VC-167P Board CN102)

Some video section adjustment points are concentrated to the VC-167P board CN102. Connect the measuring equipment via the tool (Multi CPC: J-6082-311-A).

Pin No.	Signal Name
1	PB RF
2	REC 2
3	GND
4	EMPH IN
5	CAM Y IN
6	DEEMPH OUT
7	BPF ADJ
8	RF SWP
9	CAP FG

3-1-4. Equipment connection

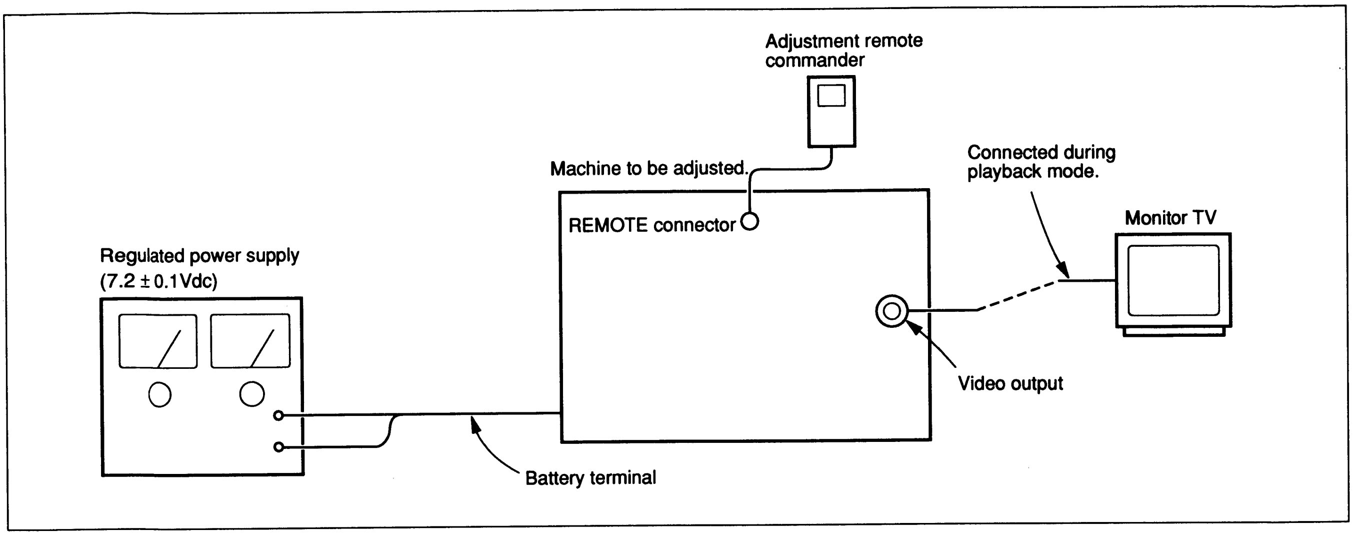

Adjustment remote commander
Machine to be adjusted.
REMOTE connector
Connected during playback mode.
Monitor TV
Regulated power supply (7.2 ± 0.1Vdc)
Video output
Battery terminal

Fig.6-3-1.

3-1-5. Alignment tape

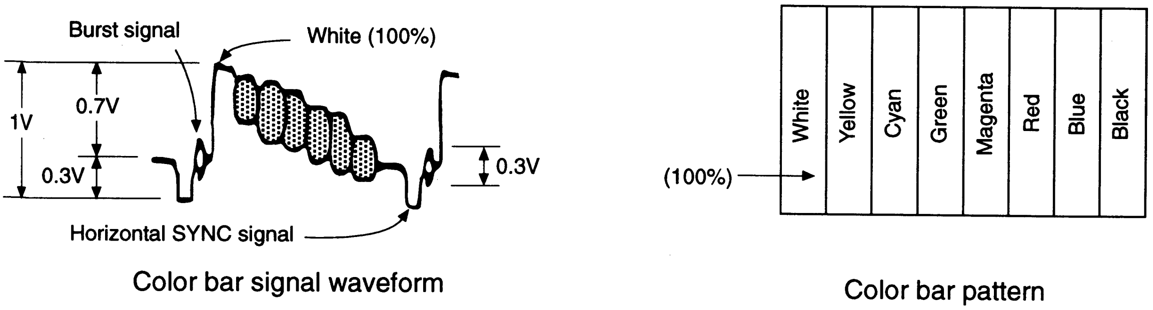
The following table shows the alignment tapes available.
Use the tape specified in the signal column for each adjustment.
If tape type is not specified in the adjustments which use the "Operation Check" tape, use any type of tape for the checking purpose.

Name	Record Mode	Tape Type	Tape Speed	Use
Tracking WR5-1CP	Normal	MP	SP	Tape path adjustment Switching position adjustment
Video frequency response adjustment WR5-6C	Normal	MP	SP	Frequency response adjustment
Operation check (SP mode) WR5-5CSP	Normal	MP	SP	Operation check
Operation check WR5-4CL	Normal	MP	LP	

Note: Tape type
MP — Metal particle tape

The color bar signal which is recorded in the alignment tape.

Note: Measured at video input/output connector (across 75 Ω termination).


Burst signal
White (100%)
1V
0.7V
0.3V
0.3V
Horizontal SYNC signal
Color bar signal waveform
(100%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Black
Color bar pattern

Color bar signal of alignment tape

3-1-6. Output level and impedance

Video output	Pin jack Output signal: 1 V p-p, 75 Ω unbalanced, sync negative
Audio output	Pin jack Input level: -7.5 dBs (across 47 kΩ load)) Output impedance: 2.2 kΩ or less

3-2. ADJUSTMENT POINTS WHEN MAJOR PARTS ARE REPLACED

1. When drum is replaced:

"Tape Path Position Adjustment" of mechanical section adjustment
"PB RF frequency response characteristics adjustment" of the video section adjustment
"Switching position adjustment" of the servo section adjustment

3-3. POWER SUPPLY SYSTEM ADJUSTMENT

1. Power supply voltage check (VC-167P board)

Mode	Camera record
Subject	Any subject
Measuring Equipment	Digital voltmeter
MT5V check	
Measuring Point	CN300 pin㊱
Specification Value	5.0 ± 0.15Vdc
DIG 3V check	
Measuring Point	CN300 pin㉚
Specification Value	3.16 ± 0.1Vdc
AU 3 V check	
Measuring Point	CN501 pin⑤
Specification Value	3.18 ± 0.1Vdc
EVF 5V check (camera mode)	
Measuring Point	CN300 pin㊶
Specification Value	4.85 ± 0.15Vdc
EVF15 V check	
Measuring Point	CN300 pin㊵
Specification Value	14.95 ± 0.4Vdc

2. VTR & CAM mode ON

Mode	Stop
Signal	Any signal
Adjustment Page	F
Adjustment Address	02

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Set the remote commander (RM-95) to HOLD (adjustment position), and turn on the UNREG power supply.
2	6	00	01	After setting the data, press the PAUSE button. (Preparation)
3	F	02	03	After setting the data, press the PAUSE button.
4				Turn off the UNREG power supply once, then turn it on.

How to cancel the VTR &CAM mode ON.

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button.
2	F	02	00	After setting the data, press the PAUSE button.
3				Turn off the UNREG power supply once, then turn it on.

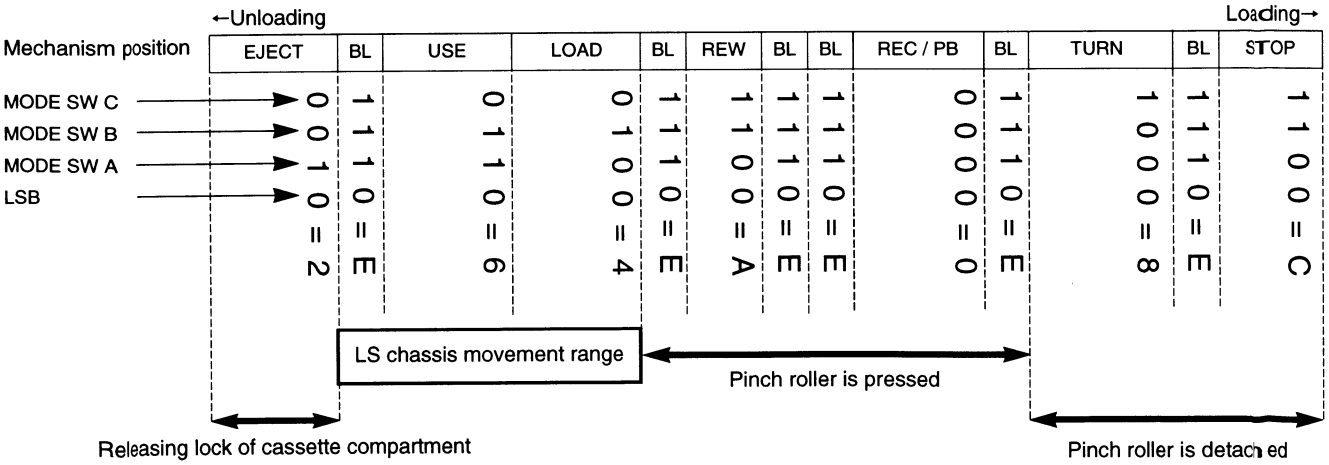
3. EMG code (Emergency code)

The emergency codes are stored in the addresses: E4, E8 and EC corresponding to the type of errors occurred. Types of error code are shown in the following table.

Code	Error Status
00	No error
10	Loading motor error during loading
11	Loading motor error during unloading
20	T reel error during unloading
21	S reel error during unloading
22	T reel error in normal mode
23	S reel error in normal mode
30	FG error during capstan startup
31	FG error during capstan normal speed
40	FG error during drum startup
41	FG error during drum startup
42	FG error during normal rotation of drum
43	Not used
44	Phase error during normal rotation of drum

4. MSW code

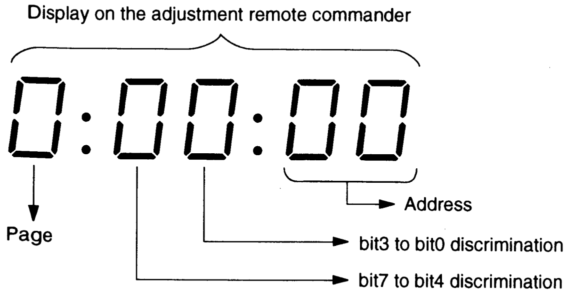
- The lower digit data of the page F: address: E6, EA and EE indicate the MSW code (mode switch code) when an error occurs.
- The upper digit data of the page F: address: E6, EA and EE indicate the MSW code (mode switch code) of mode transition (mode SW code before mode transition) when an error occurs.
- The lower digit data of the page F: address: E7, EB and EF indicate the MSW code (mode switch code) of transition target (code to which the machine is going to enter) when an error occurs.


←Unloading
Loading→
Mechanism position
EJECT
BL
USE
LOAD
BL
REW
BL
BL
REC / PB
BL
TURN
BL
STOP
MODE SW C
MODE SW B
MODE SW A
LSB
0010 = 2
1110 = E
0110 = 6
0100 = 4
1110 = E
1100 = A
1110 = E
1110 = E
0000 = 0
1110 = E
1000 = 8
1110 = E
1100 = C
LS chassis movement range
Pinch roller is pressed
Releasing lock of cassette compartment
Pinch roller is detached

Mechanism	MSW	Detail of Content
Position	Code	
EJECT	2	The position where the cassette compartment lock is released.The end position in the unthread-end direction. The mechanism does not move any more in the direction of unloading direction.
BL	E	Blank code. The code which separates a code from another code. The machine does not stop at the code while is it operating.
USE	6	EJECT completed position. If a cassette is ejected, it stops at this position. If mechanism moves in the loading direction, the TG1 guide and the TG9 guide start moving.
LOAD	4	The code during loading and unloading. This code is output while the LS chassis is moving.
REW	A	REW position. The position to activate the REW and FR/REV.
RP	0	PB, REC, CUE REV and PAUSE position. The pinch roller is pressed and the tension regulator is turned ON.
TURN	8	The position which is used to move the swing gear from S to T or from T to S.Normal STOP position.
STOP	C	The pinch roller is detached, tension regulator is turned OFF, and both reels are braked. Mechanism does not move any more in the loading direction.

5. Bit value discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Us the table below to discriminate if the bit value is “1” or “0”.


Display on the adjustment remote commander
0:00:00
Page
Address
bit3 to bit0 discrimination
bit7 to bit4 discrimination

(Example) If the remote commander display is “8E”, bit value from bit 7 to bit 4 can be discriminated from the column Ⓐ, and those from bit 3 to bit 0 from column Ⓑ.

	Display on the Adjustment Remote Commander	Bit value			
		bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A(A)	1	0	1	0
	B(b)	1	0	1	1
	C(C)	1	1	0	0
	D(d)	1	1	0	1
Ⓑ	E(E)	1	1	1	0
	F(F)	1	1	1	1

6. Initializing the emergency code area

(Caution) Perform the initializing operation only when the past emergency codes can be deleted.

Operating procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	11	00	After setting the data, press the PAUSE button.
3	6	01	4D	After setting the data, press the PAUSE button.
4	6	11	01	After setting the data, press the PAUSE button.
5	F	E4~EF	00	After setting the data, press the PAUSE button.
6	6	01	00	After setting the data, press the PAUSE button.
7	6	00	00	After setting the data, press the PAUSE button. (End)

7. LED check

Data	Operation
00	Normal
10	Tally LED lights.

Operating procedure:

Order	Page	Address	Date	Procedure
1				Turn CAM POWER ON.
2				Check LED.
3	2	00	00	After setting the data, press the PAUSE button.
4	2	A0	10	Tally LED light.

8. Key input check

Bit	Key Switch	Switch Condition
0	Date (+)	"1" =OFF "0" =ON
1	Time	
2	Cassette eject	
3	Video power supply	
4	CC DOWN	
5	Start/Stop	
6	Camera power supply	

Operating procedure:

Order	Page	Address	Data	Procedure
1	2	00	3F	After setting the data, press the PAUSE button.
2	2	01		ON/OFF of each key switch can be known by discriminating the bit value of each display data.

9. Key input check (A/D port)

- VC-167P board

Display data Address	00~20	21~60	61~A0	A1~E0	E1~FF
2E (KEY AD0: IC303 (82))	• STOP (S307)	• REW (S305)	• FF (S306)	• PAUSE (S304)	No key input
2F (KEY AD1: IC303 (83))	• PB (S303)	• EDIT SEARCH (−) (S302)	• EDIT SEARCH (+) (S301)		No key input
30 (KEY AD2: IC303 (84))	COUNTER RESET (CF-43 board S482)	TITLE (CF-43 board S301)			No key input
31 (S/S MODE SW: IC303 (85))	START/STOP MODE (CF-43 BOARD : S485)				
	5 SEC	▭			⎍
32 (PROGRAM AE: IC303 (86))	PROGRAM AE (CF-43 BOARD : S489)				
		AE SPORT	AE SHUTTER	AE TWILIGHT	AUTO

Operating procedure:

Order	Page	Address	Data	Procedure
1	2	00	01	After setting the data, press the PAUSE button.
2	2	2E~32		From the display data of each address, it can be known which key is being pressed.

10.Individual operation of drum, capstan and loading motor

Data	Operation
00	Normal
02	Drum rotation in normal direction
06	Capstan rotation in normal direction
08	Capstan rotation in reverse direction
0A	Loading motor rotation in normal direction
0C	Loading motor rotation in reverse direction
01	All motors stop.
03	
05	
07	
09	
0B	
0D	
0F	

Operating procedure:

Order	Page	Address	Data	Procedure
1	7	00	02	After setting the data, press the PAUSE button.
2	7	0E	01	Individual operation of motors is approved.
3	7	11		Motor can be operated individually by setting the above described data.
4				Turn the main power (7.2 V) OFF.

3-4. SERVO SYSTEM ADJUSTMENTS

1. SYNC level and BURST level adjustments

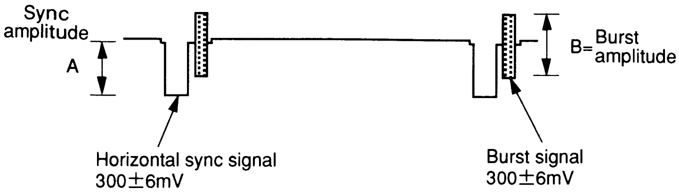
Purpose: Adjust the sync and burst level of the camera output to the specified values.

Adjustment error: The playback machine can lose lock of the servo systems if the sync level is too low. The playback color will become too thick if the burst level is low.

Mode	Camera record
Subject	Color bar chart: standard picture frame
Measurement point	VIDEO output terminal (terminated in 75Ω)
Measuring equipment	Oscilloscope
Adjustment page	F
Adjustment address	28 (SYNC LEVEL) 29 (BURST LEVEL)
Specifications	A = 300 ±6 mV (SYNC LEVEL) B = 300 ±6 mV (BURST LEVEL)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	01	03	After setting the data, press the PAUSE button.
3	F	28		Change the data using the PLAY and STOP buttons until the SYNC LEVEL (A) satisfies the specification.
4				Press the PAUSE button.
5	F	29		Change the data using the PLAY and STOP buttons until the BURST LEVEL (B) satisfies the specification.
6				Press the PAUSE button.
7	6	01	00	After setting the data, press the PAUSE button.
8	6	00	00	After setting the data, press the PAUSE button. (End)



2. Switching position adjustment

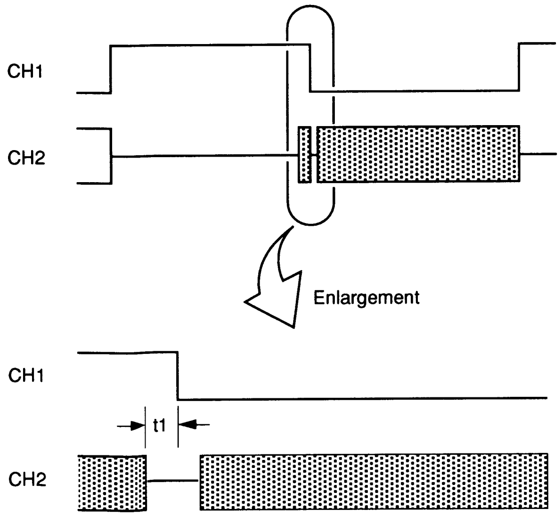
Purpose: Removes vertical mechanical error of head assembling.

Adjustment error: Skew picture.

Mode	Playback
Signal	Alignment tape : For adjustment tracking (WR5-1CP)
Measurement Point	CH1 : ⑧ of CN102 (RF SWP) CH2 : ① of CN102 (PB RF)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	0A 0B
Specification Value	t1= 0 ± 10 μ sec

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	0B	08	Initial setting.
3	F	0B		Change the data with the PLAY and STOP buttons, and minimize t1.
4				Press the PAUSE button.
5	F	0A		Change the data with the PLAY and STOP buttons, and minimize t1.
6				Press the PAUSE button.
7				Check that tl satisfies the specified value. If not, repeat steps 3 to 6 in order.
8	6	00	00	After setting the data, press the PAUSE button. (End)

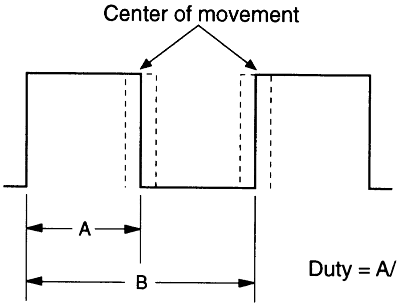


3. Capstan FG offset adjustment

Purpose: Adjusts duty ratio of capstan FG signal

Adjustment error: Jitter can increase.

Mode	CAM-REC (SP)
Signal	Any signal
Measurement Point	CN102 pin⑨
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	12
Specification Value	Duty = 50 ± 1.5%



Duty = A/B x 100 [%]

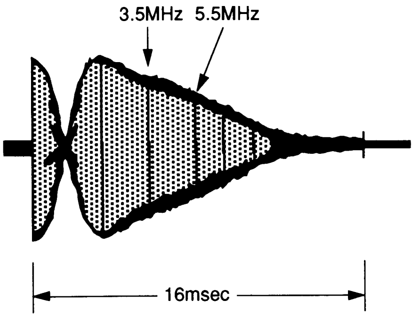
Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	12	80	After setting the data, press the PAUSE button.
3	F	12		Change data using PLAY and STOP buttons so that the duty ratio A/B satisfies the specification.
4				Press the PAUSE button.
5	6	00	00	After setting the data, press the PAUSE button. (End)

3-5. PLAYBACK FREQUENCY RESPONSE CHARACTERISTICS ADJUSTMENT

Purpose: Remove variation of picture quality between heads due to difference of characteristics.

Adjustment error: Flicker or over-modulation of playback picture.



Mode	Playback
Signal	Alignment tape: Normal mode frequency response characteristics adjustment (WR5-6C)
Measurement Point	Check connector (CH1: CN102 pin① (PB RF)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	22 23
Specification Value	3.5 MHz level : 5.5 MHz level = 4 : (3.0 ±0.2)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	22		Change data using PLAY and STOP buttons to adjust the level ration between 3.5 MHz level and 5.5 MHz level of the PB RF waveform of channel "1a" satisfies the specification. Press the PAUSE button. Playback mode.
3	F	23		Adjust the channel "2a" in the same way (address 23). Press the PAUSE button. Playback mode.
4	6	00	00	After setting the data, press the PAUSE button. (End)

3-6. DEMD OUT LEVEL ADJUSTMENT

Purpose: The playback video level is kept to constant level.

Adjustment error: The playback picture can be brighter or darker than normal picture.

Mode	Playback
Signal	Alignment tape : Normal mode (WR5-5CSP)
Measurement Point	IC201 pin⑳ or CN102 pin⑥
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	1D
Specification Value	A=0.50±0.01Vp-p

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	1D		Change data using PLAY and STOP buttons so that the Y signal level (A) satisfies the specification.
3				Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)

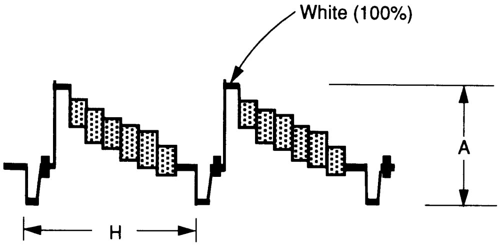


Fig. 6-3-1

3-7. YD OUT LEVEL ADJUSTMENT

Purpose: Minimizes the residual chroma component of Y comb filter output signal.

Adjustment error: Chroma flicker at video out (pin jack) of VTR overall characteristics. Color variations also significant.

Mode	Playback
Signal	Alignment tape : Normal mode (WR5-5CSP)
Measurement Point	CN102 pin⑤
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	24
Specification Value	A=0.50±0.01Vp-p

Note : Minimize the residual chroma to the smallest amplitude

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2 3	F	24		Change data using PLAY and STOP buttons so that the Y signal level (A) satisfies the specification.
4				Press the PAUSE button.
5	1	00	00	After setting the data, press the PAUSE button. (End)

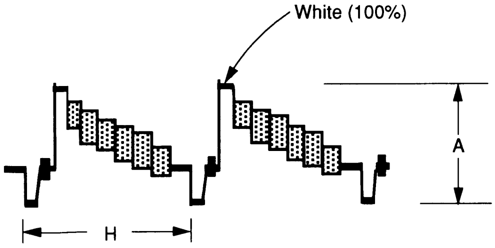


Fig. 6-3-2

Related Adjustments:

"Emphasis input level adjustment", "PB Y level adjustment", "Y FM carrier frequency adjustment"

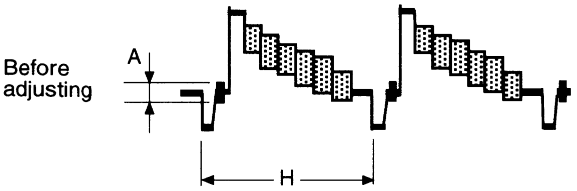
3-8. PB CHROMA LEVEL CHECK

Purpose:	The playback chroma level is kept to constant level.
Adjustment error:	Color of playback picture can be thinner or thicker than normal picture.

Mode	Playback
Signal	Alignment tape: color bar segment of operation check tape • Normal mode WR5-5CSP
Measurement Point	CN102 pin⑥
Measuring Instrument	Oscilloscope
Adjustment Page	
Adjustment Address	
Specification Value	A=150±15mVp-p (BURST LEVEL)

Adjustment procedure:

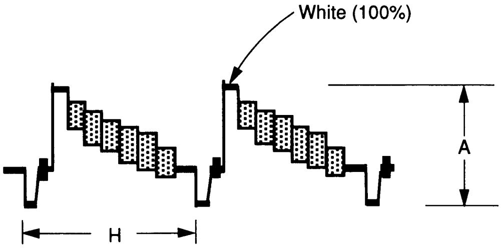
Order	Page	Address	Data	Procedure
1				Playback the color bar segment of the normal mode alignment tape (WR5-5CSP).
2				Check that the burst signal level satisfies the specification.



3-9. PB Y OUT LEVEL ADJUSTMENT

Purpose:	Adjusts playback video level for the specification value.
Adjustment error:	Playback picture can be too brighter or too darker than normal picture.

Mode	Playback
Signal	Alignment tape: color bar segment of operation check tape • Normal mode WR5-5CSP
Measurement Point	VIDEO output terminal (terminated in 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	1B
Specification Value	A=1.00±0.05Vp-p



Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2				Playback the color bar segment of the normal alignment tape (WR5-5CSP playback)
3	F	1B		Change data using PLAY and STOP buttons so that the playback signal level (A) satisfies the specification.
4				Press the PAUSE button.
5	6	00	00	After setting the data, press the PAUSE button. (End)

3-10. FE OSC CHECK

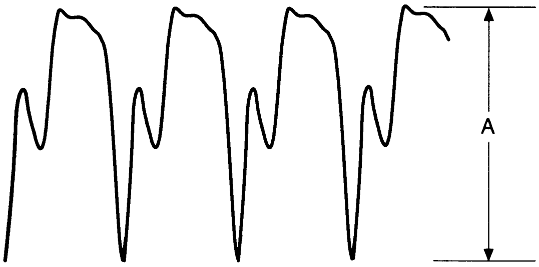
Purpose: Check the oscillating frequency and level of the flying erase (FE) signal.

Adjustment error: If REC-PAUSE recording is repeated, unerased area is left in the junctions between the editings which results in increase of noise or previous picture can be seen.

Mode	CAM-REC
Signal	Any signal
Measurement Point	CN101 pin ⑪
Measuring Instrument	Oscilloscope and frequency counter
Adjustment Page	
Adjustment Address	
Specification Value	A=7.0Vp-p or more (MP mode) f=7.2±0.5MHz (MP mode)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Insert a normal MP type tape.
2				Make a recording.
3				Check that the FE signal level satisfies the specification.
4				Check that the FE signal frequency satisfies the specification.



f=7.2±0.5MHz

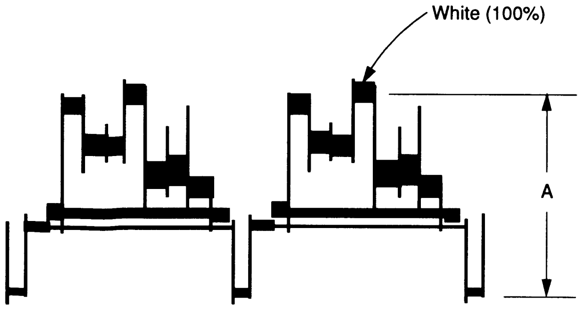
3-11. EMPHASIS INPUT LEVEL ADJUSTMENT

Purpose:	Adjusts the record emphasis characteristics to the specification value.
Adjustment error:	Luminance signal smear, blurred picture, too much emphasized edge of overall video characteristics.

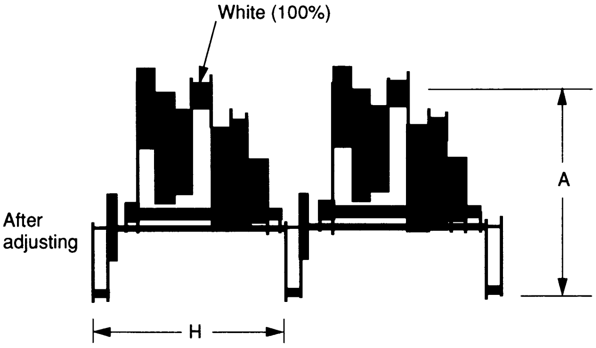
Mode	CAM-REC
Signal	Color bar chart
Measurement Point	· CN102 PIN④ · VIDEO output terminal (terminated in 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	1A
Specification Value	A=(Vo×0.96×500) mVp-p± 2%

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	01	47	After setting the data, press the PAUSE button.
3				Measure amplitude of the VIDEO OUT. The measured value is "Vo"[V].
4	F	1A		Change data using PLAY and STOP buttons so that the Y signal level at CN102 pin④ (A) satisfies the specification.
5				Press the PAUSE button.
6	6	01	00	After setting the data, press the PAUSE button.
7	6	00	00	After setting the data, press the PAUSE button. (End)



3-12. Y FM DEVIATION ADJUSTMENT (NOTE)



Related Adjustments:

"Normal mode Y FM deviation adjustment"

Purpose: Adjusts the FM signal to be recorded on tape to the 8 mm format. (Adjusts the frequency deviation of normal mode Y FM signal.)

Adjustment error: Too bright or too dark overall picture. Overmodulation picture. (If deviation is too wide,or too narrow.)

Mode	CAM-REC and playback
Signal	Color bar chart
Measurement Point	· CN102 pin② · VIDEO output terminal (terminated in 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	17
Specification Value	A=(Vo)Vp-p±2%

Note : The "Emphasis input level adjustment", "PB Y level adjustment", must have already been completed.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Insert a normal MP type tape.
2	6	00	01	After setting the data, press the PAUSE button. (Preparation)
3	6	01	47	After setting the data, press the PAUSE button.
4				Shoot and record the color bar chart. The video out level at that setup is "Vo".
5				Playback the recorded signal.
6				Compare the playback signal level (A) with the specification value. If the specification value is satisfied, the adjustment is complete.
7	F	17		If the specification value is satisfied, change data using PLAY and STOP buttons. • If the playback signal level is bigger than the specification value, decrease the data. • If the playback signal level is smaller than the specification value, increase the data.
8				Press the PAUSE button.
9				Return to step 4.
10	6	01	00	After setting the data, press the PAUSE button.
11	6	00	00	After setting the data, press the PAUSE button. (End)

3-13. Y FM CARRIER FREQUENCY ADJUSTMENT

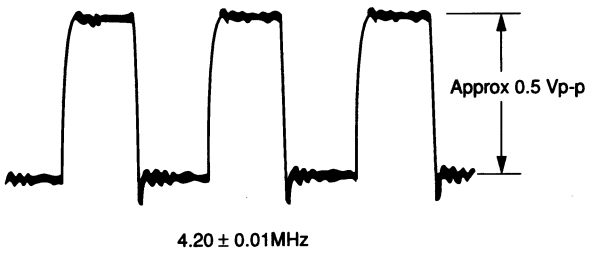
Purpose: Adjusts the FM signal to be recorded on tape to the 8 mm format. (Adjusts the carrier frequency of normal mode Y FM signal.)

Adjustment error: (If frequency is low) Overall picture will be blurred signal. (If frequency is high) Overall picture will have black streaking noise. S/N will be deteriorated.

Mode	CAM-REC
Signal	Any signal
Measurement Point	IC201 pin㊶
Measuring Instrument	Frequency counter,Oscilloscope
Adjustment Page	F
Adjustment Address	19
Specification Value	4.20±0.01MHz

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	01	43	After setting the data, press the PAUSE button.
3	F	19		Change data using PLAY and STOP buttons so that the Y signal level (A) satisfies the specification. (Record mode)
4				Press the PAUSE button.
5	6	01	00	After setting the data, press the PAUSE button.
6	6	00	00	After setting the data, press the PAUSE button. (End)



3-14. CHROMA EMPHASIS fo ADJUSTMENT

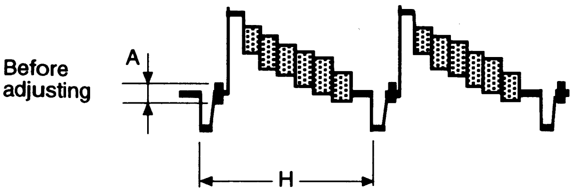
Purpose: Adjust fo of the chroma emphasis to the specified frequency range.

Adjustment error: The bust and chroma level becomes too big during playback.

Mode	Playback
Signal	Color bar signal (WR5-5CSP)
Measurement Point	· VIDEO output terminal (terminated in 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	1E
Specification Value	Minimizes the chroma component (A in the following diagram)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	1E		Change data so that the chroma component (A) is minimized.
3				Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)



3-15. REC Y LEVEL ADJUSTMENT

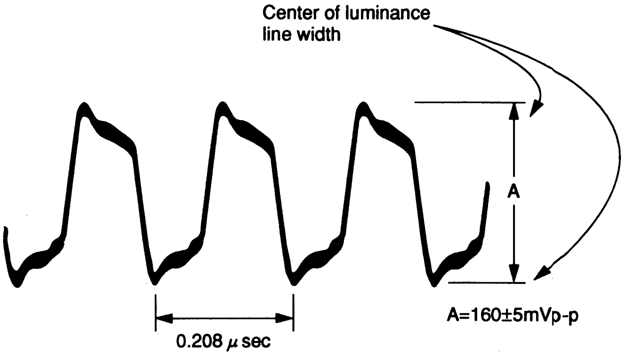
Purpose: Maintains a constant level of Y FM, chroma AFM and ATF signals when recording on tape.

Adjustment error: (If level is low) Poor S/N of playback picture
(If level is high) Black streaking noise appears.

Connection: Connect CN102 pin⑧ (RF SWP) to GND.

Mode	CAM-REC (SP)
Signal	No signal
Measurement Point	CN102 pin② (check connector)
Measuring Instrument	Oscilloscope (Note)
Adjustment Page	F
Adjustment Address	1F
Specification Value	A=160±5mVp-p

Note: Use the MP type tape. If an oscilloscope has the bandwidth limiting switch, set to on position.



Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2				Insert the MP tape to establish record mode.
3	6	01	43	After setting the data, press the PAUSE button.
4	F	1F		Change data using PLAY and STOP buttons so that the REC Y RF level (A) satisfies the specification.
5				Press the PAUSE button.
6	6	01	00	After setting the data, press the PAUSE button.
7	6	00	00	After setting the data, press the PAUSE button. (End)

3-16. REC L LEVEL ADJUSTMENT

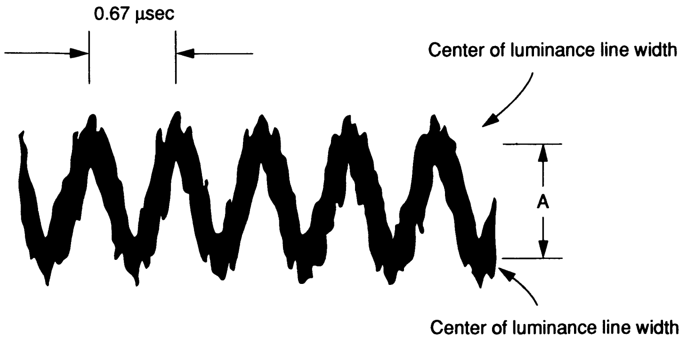
Purpose: Maintains a constant level of chroma, AFM and ATF signals when recording on tape.

Adjustment error: If level is low, audio distortion increases, ATF servo loses lock, and chroma S/N deteriorates.
If level is high, Y S/N deteriorates and white streaking noise appears.

Mode	CAM-REC (SP)
Signal	No signal
Measurement Point	CN102 pin② (check connector)
Measuring Instrument	Oscilloscope Frequency bandwidth limitation: 20 MHz OFF
Adjustment Page	F
Adjustment Address	21
Specification Value	A=8.494±0.3mV (AFM Level)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	01	43	After setting the data, press the PAUSE button.
3	F	21		Change data using PLAY and STOP buttons so that the AFM signal level (A) satisfies the specification.
4				Press the PAUSE button.
5	6	01	00	After setting the data, press the PAUSE button.
6	6	00	00	After setting the data, press the PAUSE button. (End)


0.67 µsec
Center of luminance line width
A
Center of luminance line width

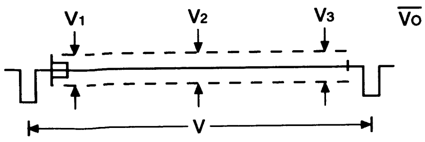
3-17. REC C LEVEL ADJUSTMENT

Purpose:	Maintains a constant chroma level when recording on tape.
Adjustment error:	If level is low, overall S/N deteriorates. If level is high, S/N of Y signal at deep colo deteriorates and white streaking noise appears.

Mode	CAM-REC
Signal	White pattern (See page 6-2)
Measurement Point	· CN102 pin② (Check connector) · VIDEO output terminal (terminated in 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	20
Specification Value	$A=\left(28.5\times\frac{\overline{Vo}}{700}\right)$mVp-p±2mVp-p

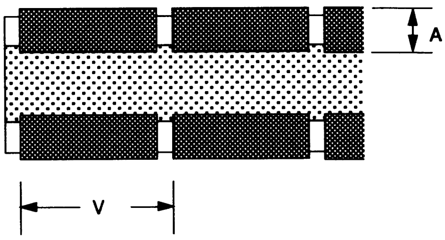
Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Shoot the all white pattern to the full picture frame.
2	6	00	01	After setting the data, press the PAUSE button. (Preparation)
3	6	01	45	After setting the data, press the PAUSE button.
4				Measure the chroma output level of the VIDEO OUT connector. Obtain the average value of three points (beginning, middle, end) of a vertical period. Call the average value $\overline{Vo}$ (mV).
5	F	20		Change data using PLAY and STOP buttons so that the REC signal at CN102 pin② amplitude (A) satisfies the specification.
6				Press the PAUSE button.
7	6	01	00	After setting the data, press the PAUSE button.
8	6	00	00	After setting the data, press the PAUSE button. (End)



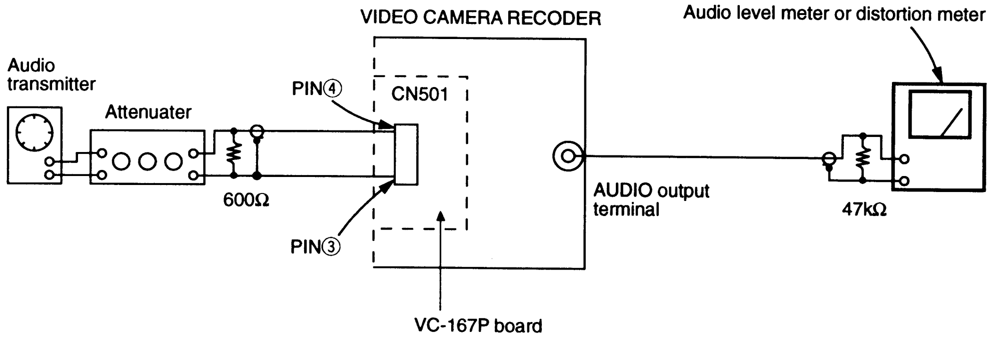
$$\overline{Vo}=\left(\frac{V_1+V_2+V_3}{3}\right)$$

VIDEO OUT Signal



6-4. AUDIO SYSTEM ADJUSTMENT

- Use the alignment tape (WR5-5CSP) for audio system adjustment.
- Connect an audio input signal from VC-167P board CN501 as shown in Fig.6-4-1.



VIDEO CAMERA RECODER
Audio level meter or distortion meter
Audio transmitter
Attenuater
PIN④
CN501
600Ω
PIN③
AUDIO output terminal
47kΩ
VC-167P board

Fig.6-4-1

4-1. EE-OUTPUT LEVEL CHECK

Mode	Record
signal	CN501 PIN ④ INPUT 400 Hz, −38 dBs
	Audio input from CN501 pin④
Measurement Point	AUDIO output terminal (no load)
Measuring Instrument	Audio level meter
Specification Value	−7.5 ±2.0 dBs

Check procedure

Order	Procedure
1	Check that 400 Hz signal level satisfies the specification.

4-2. 1.5MHz DEVIATION ADJUSTMENT

Purpose: 1.5MHz deviation adjustment. Error in this adjustment value means loss of tape inter change ability.

Mode	Playback
Signal	Alignment tape : For checking operations (WR5-5CSP)
Measurement	AUDIO output terminal.
Measuring Instrument	Oscilloscope, level meter
Adjustment Page	F
Adjustment Address	13
Specified Value	-7.5 ± 0.5dBs

Adjustment method:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	13		Change the data with the PLAY and STOP buttons, and adjust the 400Hz signal level to specified value.
3				Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)

4-3. BPF fo ADJUSTMENT

Purpose: Optimizes fo of BPF inside IC.

Adjustment error: Incorrect discrimination of monaural/stereo and increase of noise at high output of audio volume are resulted.

Mode	Playback
Signal	Alignment tape:(WR5-5CSP)
Measurement Point	AUDIO output terminal
Measuring Instrument	Distortion meter
Adjustment Page	F
Adjustment Address	15
Specification Value	Distortion : 1% or less.

Adjustment procedure:

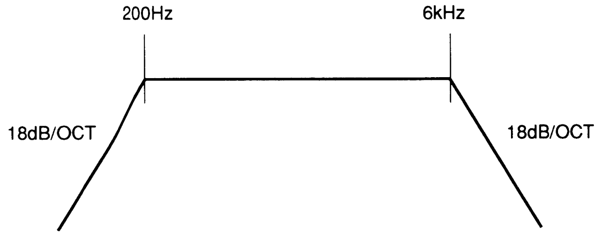
Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2				Playback the 400 Hz segment of the WR5-5CSP alignment tape.
3	F	15		Change data using PLAY and STOP buttons so that distortion factor is minimized.
4				Press the PAUSE button.
5	6	00	00	After setting the data, press the PAUSE button. (End)

4-4. OVERALL SIGNAL LEVEL AND DISTORTION CHECK

Purpose: Checks distortion level.

Mode	CAM-REC and playback
Signal	400 Hz, -38 dBs:
Measurement Point	AUDIO output terminal
Measuring Instrument	Audio level meter and distortion meter
Specification Value	Level: −7.5±2.0dBs Distortion 0.8% or less (Note)

Note: The value when band-pass filter of 200 Hz to 6 kHz is used.



Check procedure:

Order	Procedure
1	Input 400 Hz, -38 dBs signal to, CN501 pin ④.
2	Record the signal. (CAM-REC)
3	Remove the input signal and playback the recorded segment.
4	Confirm that 400 Hz signal level at audio output terminal is -7.5 ±2 dBs and distortion is 0.8% or less. (Note)

4-5. OVERALL NOISE LEVEL CHECK

Purpose: Checks noise level.

Mode	CAM-REC and playback
Signal	No signal: VC-167P board CN501 (Note)
Measurement Point	AUDIO output terminal
Measuring Instrument	Audio level meter (using IHF-A curve weighting filter)
Specification Value	−65 dBs or less

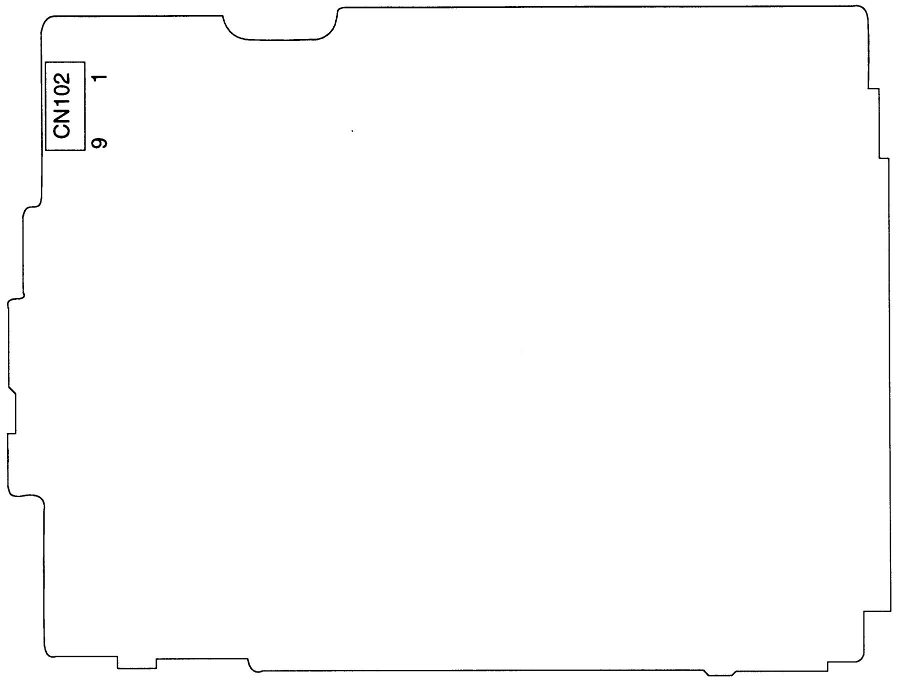
Note: Before making short circuit between CN501 pins③ and ④, remove the flexible board from CN501

Check procedure:

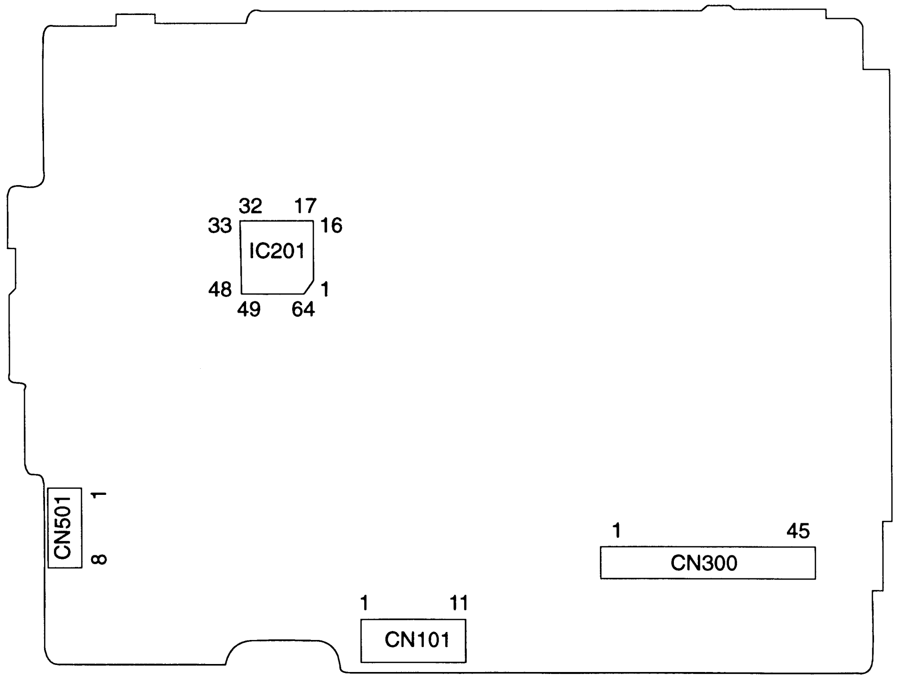
Order	Procedure
1	Insert a shorting to pin③ and pin④ as CN501.
2	Make recording.
3	Remove the shorting plug.
4	Playback the recorded segment.
5	Confirm that the noise level at audio input terminal is −65 dBs or less.

ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VC-167P BOARD (SIDE A)



VC-167P BOARD (SIDE B)

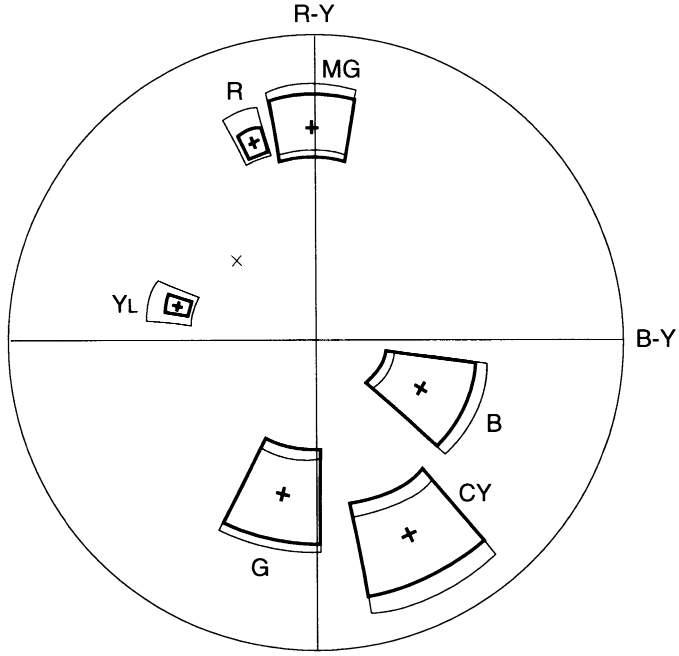


FOR CAMERA COLOR REPRODUCTION ADJUSTMENT (CCD-TR340E MODEL)

Take a copy of CAMERA COLOR REPRODUCTION FRAME and Parts reference sheets with a clear sheet for use.

⊞ : WEIGHT OFF MODE

☐ : WEIGHT ON MODE

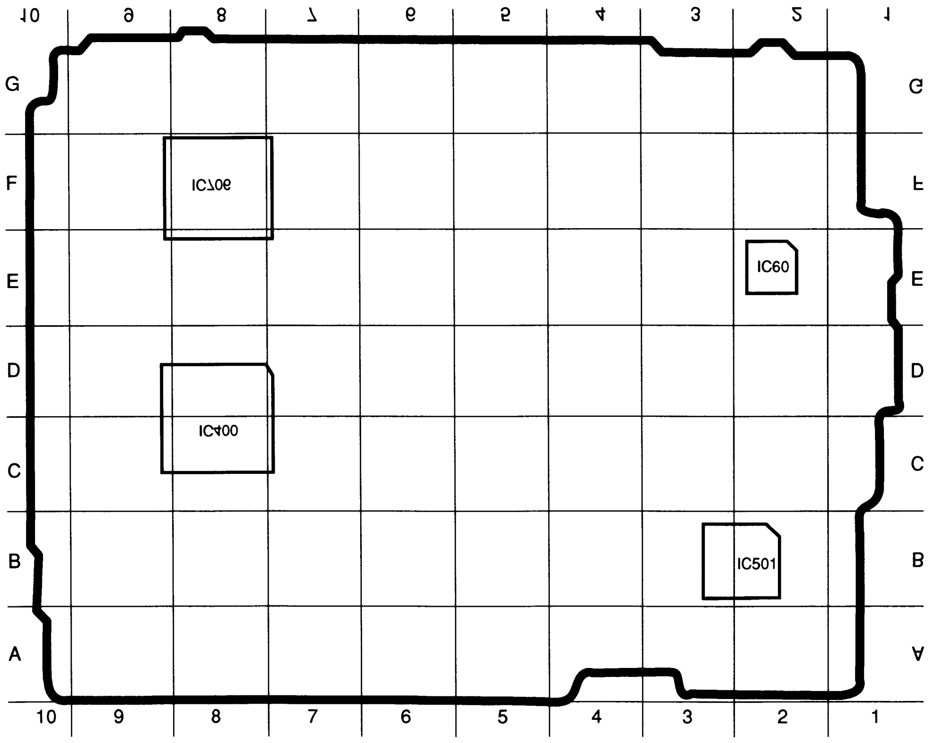

R-Y
MG
R
YL
B-Y
B
CY
G

CCD-TR340E

⟨PARTS REFERENCE SHEET⟩

You can find the parts position of mount locations applying to VC-167P board of a set.

VC-167P CCD-TR340E **SIDE A**

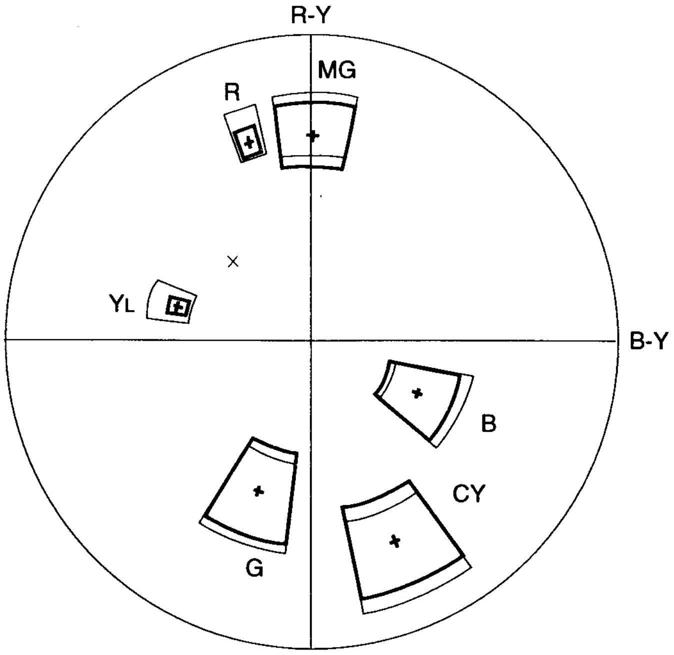

10
9
8
7
6
5
4
3
2
1
G
F
E
D
C
B
A
IC706
IC60
IC400
IC501

SIDE B CCD-TR340E VC-167P

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT (CCD-TR520E MODEL)

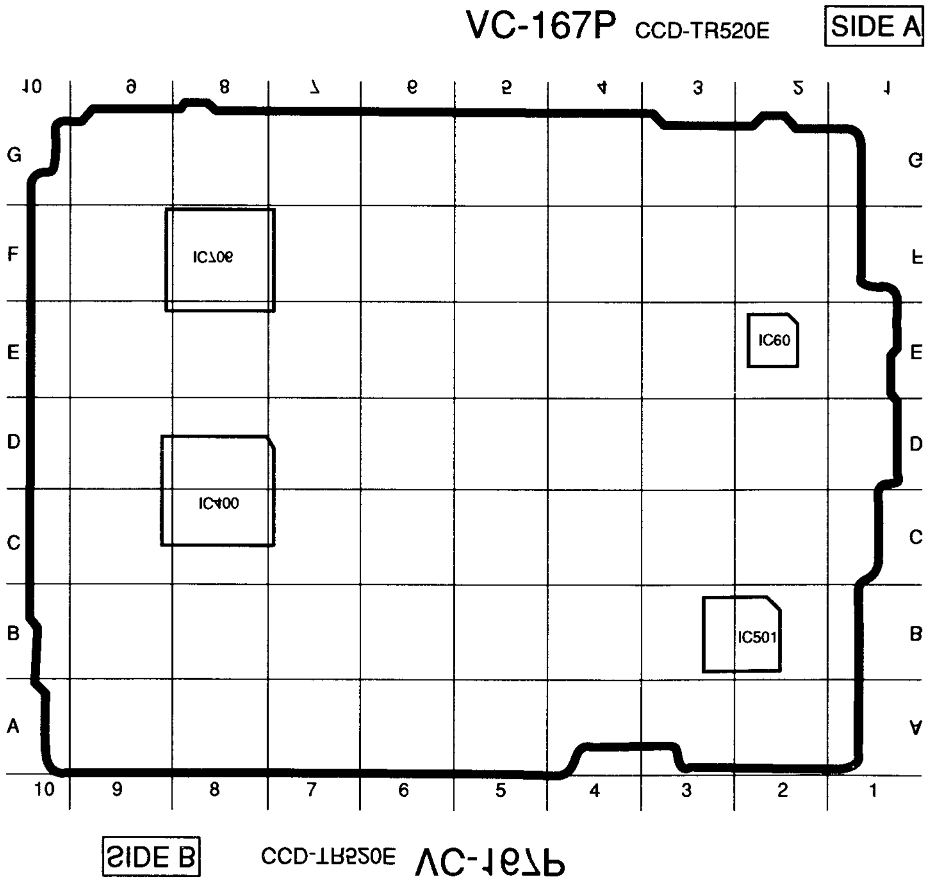
Take a copy of CAMERA COLOR REPRODUCTION FRAME and Parts reference sheets with a clear sheet for use.

⊞ : WEIGHT OFF MODE
☐ : WEIGHT ON MODE


R-Y
MG
R
YL
B-Y
B
CY
G

CCD-TR520E

〈PARTS REFERENCE SHEET〉
You can find the parts position of mount locations applying to VC-167P board of a set.


VC-167P CCD-TR520E
SIDE A
10
9
8
7
6
5
4
3
2
1
G
F
E
D
C
B
A
IC706
IC60
IC400
IC501
SIDE B
CCD-TR520E VC-167P

CCD-TR340E/TR520E
RMT-713

SONY

AEP Model
CCD-TR340E/TR520E
UK Model
CCD-TR520E

SERVICE MANUAL

SUPPLEMENT-2

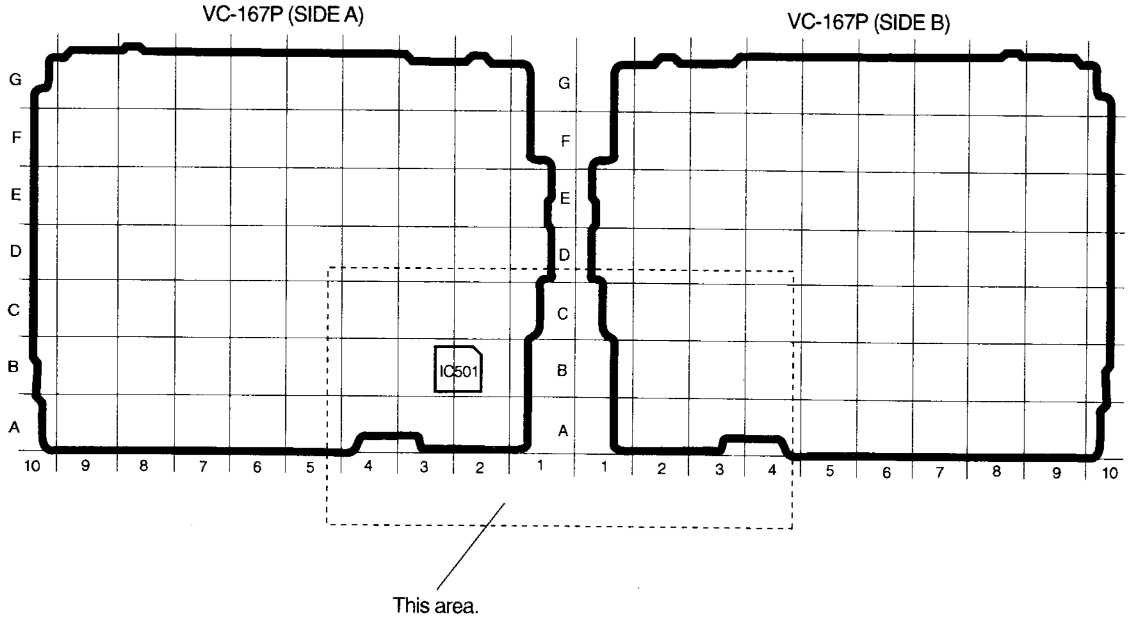
File this supplement with the Service Manual.
(96-040)

1. Information related to the newly added types of IC (IC501 AFM PROCESS) used in the audio block of the VC-167P board.
2. Correction of flange back adjustment.
3. Change of the DD-80P board Zoom SW to outside the board.

VC-167P BOARD

C501	(A)A-2	C537	(B)B-2	Q504	(B)A-2	R536	(B)A-2
C502	(A)A-2	C538	(B)A-3	Q506	(A)A-2	R537	(A)B-2
C503	(A)A-2	C539	(B)B-3	Q507	(B)A-2	R538	(B)A-2
C504	(B)B-2	C540	(B)C-2	Q510	(B)C-2	R556	(B)A-1
C505	(B)A-2	C541	(B)C-2	Q511	(B)C-2	R557	(B)A-2
C506	(A)A-2	C542	(A)C-1			R558	(A)A-2
C507	(A)A-2	C543	(A)C-2	R501	(A)A-3	R560	(B)B-3
C508	(A)A-2	C544	(B)B-2	R502	(A)A-2		
C509	(A)A-3	C545	(B)B-2	R503	(A)C-6		
C511	(A)A-3	C546	(B)C-1	R505	(B)A-2		
C512	(A)A-2	C548	(B)C-2	R506	(A)C-6		
C513	(A)A-3	C549	(B)C-2	R507	(A)A-2		
C514	(B)A-2	C550	(B)A-2	R511	(B)B-3		
C515	(A)A-3	C551	(A)C-1	R512	(A)C-2		
C516	(A)A-3	C552	(A)C-1	R513	(B)B-3		
C517	(A)A-2	C553	(A)C-1	R514	(B)C-2		
C518	(A)A-2	C554	(A)C-1	R515	(A)C-2		
C519	(A)A-3	C555	(A)C-2	R516	(A)C-6		
C520	(B)C-2	C556	(A)C-2	R517	(B)C-2		
C521	(B)B-2	C557	(A)C-3	R519	(A)A-3		
C522	(B)B-3	C558	(B)C-2	R520	(A)C-2		
C523	(B)B-2	C561	(B)A-2	R522	(B)A-2		
C525	(B)A-2	C563	(A)A-1	R523	(A)B-3		
C526	(A)B-1	C564	(A)C-2	R525	(A)C-1		
C527	(B)B-3	C565	(A)C-2	R526	(A)A-2		
C528	(A)A-2	C567	(B)C-2	R527	(B)A-1		
C529	(A)B-2	C568	(B)A-2	R528	(B)A-2		
C530	(B)B-3			R529	(B)A-2		
C531	(A)C-1	CN501	(B)B-1	R530	(B)A-2		
C532	(B)B-3			R531	(B)A-1		
C533	(A)B-3	IC501	(A)B-2	R532	(B)A-1		
C534	(B)B-3			R533	(B)B-2		
C535	(B)B-2	Q501	(B)A-2	R534	(B)B-2		
C536	(B)B-3	Q503	(A)A-2	R535	(B)C-6		

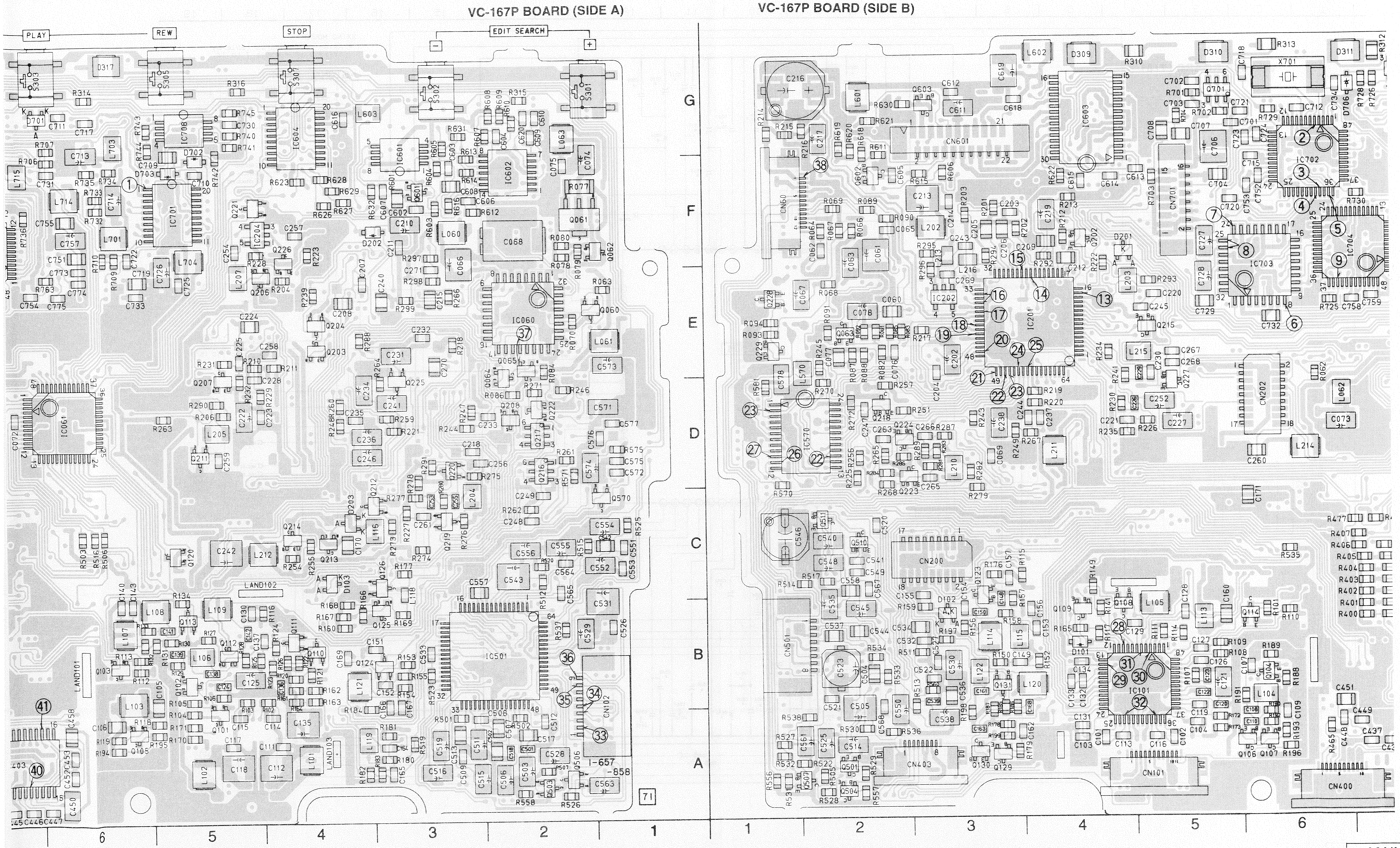
Location of printed wiring board



VC-167P (MAIIN) PRINTED WIRING BOARD

— Ref. No. : VC-167P Board; 1,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.



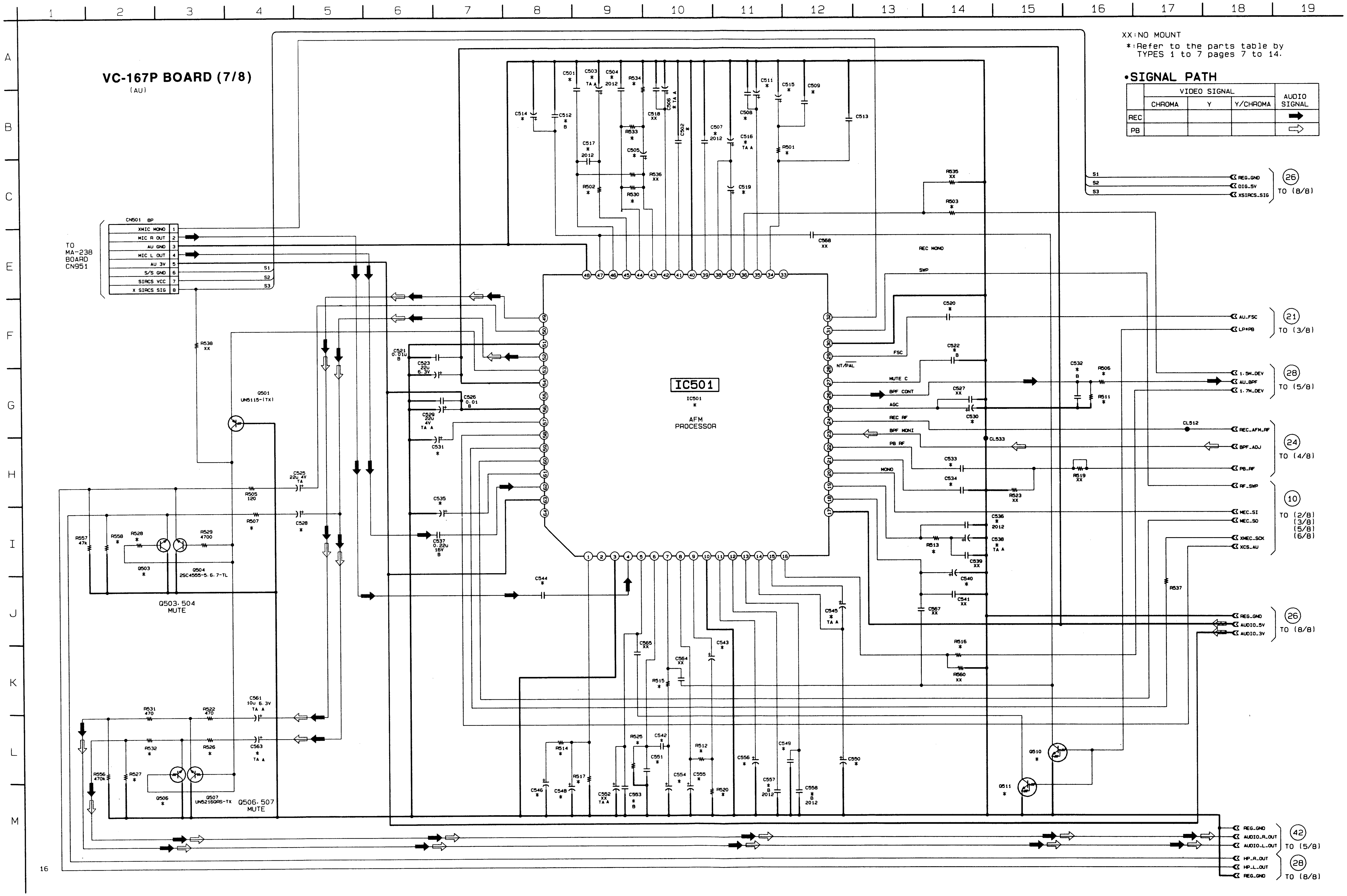
VC-167P BOARD (SIDE A)

VC-167P BOARD (SIDE B)

PLAY
REW
STOP
EDIT SEARCH
−
+
S303
S305
S307
S302
S301
IC708
IC604
IC601
IC602
IC701
IC060
IC061
IC501
CN102
G
F
E
D
C
B
A
6
5
4
3
2
1
CN601
CN60
IC603
IC702
IC703
IC704
CN701
IC202
IC201
IC570
CN202
CN200
CN501
CN403
IC101
CN101
CN400
X701
C216
C546
C523
LAND101
LAND102
LAND103
1
2
3
4
5
6

VC-167P (AUDIO) SCHEMATIC DIAGRAM

— Ref. No. : VC-167P Board; 1,000 Series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
A
B
C
D
E
F
G
H
I
J
K
L
M
VC-167P BOARD (7/8)
(AU)
TO
MA-238
BOARD
CN951
CN501 8P
XMIC MONO 1
MIC R OUT 2
AU GND 3
MIC L OUT 4
AU 3V 5
S/S GND 6
SIRCS VCC 7
X SIRCS SIG 8
S1
S2
S3
R538
XX
Q501
UN5115-(TX)
IC501
IC501
*
AFM
PROCESSOR
Q503, 504
MUTE
Q503
*
Q504
2SC4555-5.6.7-TL
Q506
*
Q507
UN5216ORS-TX
Q506, 507
MUTE
Q510
*
Q511
*
R557
47k
R558
*
R528
*
R529
4700
R505
120
R507
*
R531
470
R522
470
R532
*
R526
*
R556
470k
R527
*
C525
22u 4V
TA
C528
*
C561
10u 6.3V
TA A
C563
*
TA A
C544
*
C521
0.01u
B
C523
22u
6.3V
C526
0.01
B
C529
22u
4V
TA A
C531
*
C535
*
C537
0.22u
16V
B
NT/PAL
MUTE C
BPF CONT
AGC
REC RF
BPF MONI
PB RF
MONO
FSC
REC MONO
SWP
CL533
CL512
R537
16
S1
S2
S3
REG_GND
DIG_5V
XSIRCS_SIG
26
TO (8/8)
AU_FSC
LP*PB
21
TO (3/8)
1.5M_DEV
AU_BPF
1.7M_DEV
28
TO (5/8)
REC_AFM_RF
BPF_ADJ
PB_RF
24
TO (4/8)
RF_SWP
MEC_SI
MEC_SO
XMEC_SCK
XCS_AU
10
TO (2/8)
(3/8)
(5/8)
(6/8)
REG_GND
AUDIO_5V
AUDIO_3V
26
TO (8/8)
REG_GND
AUDIO_R_OUT
AUDIO_L_OUT
42
TO (5/8)
HP_R_OUT
HP_L_OUT
REG_GND
28
TO (8/8)

XX : NO MOUNT

* : Refer to the parts table by TYPES 1 to 7 pages 7 to 14.

•SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨

ELECTRICAL PARTS LIST (The parts table showing correspondence between the used parts and the respective destination models.)

NOTE:

When indicating parts by reference number, please include the board name.

This parts list shows the parts of the AUDIO block only of the VC-167P board. Refer to the respective Service Manuals of each model for other parts.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: μF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: μH
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

〈There are following five types depending on the AFM PROCESS IC501.〉

TYPE 1	AN2980FH-EB	(STEREO)
TYPE 2	AN3996FHP-EB	(MONO)
TYPE 3	CXA1837R-T	(MONO)
TYPE 4	LA7457W-TB	(MONO)
TYPE 5	CXA2038R	(MONO)

Note 1 : Headphone Out MODEL only.
Note 2 : Digital Zoom MODEL only.
Note 3 : TRV (LCD) MODEL only.

×× : No mount.
← : Same as the left description.

Destination	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5
Ref. No.	Part No./Description	Part No./Description	Part No./Description	Part No./Description	Part No./Description
IC501	IC AN2980FH-EB 8-759-368-08 (STEREO)	IC AN3996FHP-EB 8-759-338-93 (MONO)	IC CXA1837R-T 8-752-075-66 (MONO)	IC LA7457W-TB 8-759-368-09 (MONO)	IC CXA2038R 8-752-076-14 (MONO)
C501	××	××	××	××	××
C502	CERAMIC CHIP 0.01uF 50V 1-164-232-11	←	××	××	××
C503	××	××	××	××	××
C504	××	××	CERAMIC CHIP 1000PF 50V 1-163-009-11	××	←
C505	TANTAL. CHIP 47uF 4V 1-104-908-11	××	TANTAL. CHIP 47uF 4V 1-104-908-11	××	TANTAL. CHIP 47uF 4V 1-104-908-11
C506	TANTALUM CHIP 2.2uF 10V 1-135-149-21	××	××	××	××
C507	CERAMIC CHIP 0.47uF 16V 1-107-823-11	××	××	××	××
C508	××	××	××	CERAMIC CHIP 2200pF 50V 1-162-966-11	CERAMIC CHIP 220pF 50V 1-162-960-11
C509	××	××	××	CERAMIC CHIP 0.1uF 16V 1-107-826-11	××
C511	TANTALUM CHIP 2.2uF 10V 1-135-149-21	TANTALUM CHIP 3.3uF 6.3V 1-135-180-21	××	××	××
C512	CERAMIC CHIP 4700PF 50V 1-162-968-11	←	××	××	××
C513	××	××	CERAMIC CHIP 0.22uF 16V 1-164-489-11	CERAMIC CHIP 0.1uF 50V 1-164-004-11	←
C514	××	××	××	TANTALUM CHIP 10uF 6.3V 1-135-259-11	××
C515	TANTAL. CHIP 22uF 4V 1-104-847-11	←	TANTAL. CHIP 0.47uF 35V 1-135-145-11	××	←
C516	TANTALUM CHIP 2.2uF 10V 1-135-149-21	××	××	××	××
C517	CERAMIC CHIP 0.47uF 16V 1-107-823-11	××	××	××	××
C518	××	CERAMIC CHIP 0.01uF 25V 1-162-970-11	××	××	××
C519	××	××	××	TANTAL. CHIP 4.7uF 25V 1-135-181-21	××
C520	CERAMIC CHIP 0.01uF 25V 1-162-970-11	←	←	××	←
C521	CERAMIC CHIP 0.01uF 25V 1-162-970-11	←	←	××	←

Destination	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5
Ref. No.	Part No./Description	Part No./Description	Part No./Description	Part No./Description	Part No./Description
C522	CERAMIC CHIP 0.022uF 25V 1-164-227-11	←	CERAMIC CHIP 680pF 50V 1-162-963-11	CERAMIC CHIP 0.022uF 25V 1-164-227-11	←
C523	ELECT CHIP 22uF 6.3V 1-124-778-00	←	←	←	←
C525	TANTAL. CHIP 22uF 4V 1-104-847-11 **NOTE 1**	←	←	←	←
C526	CERAMIC CHIP 0.01uF 25V 1-162-970-11	←	←	←	←
C527	××	××	××	××	××
C528	TANTAL. CHIP 22uF 4V 1-104-847-11	××	××	××	××
C529	TANTAL. CHIP 22uF 4V 1-104-847-11	←	←	←	←
C530	TANTAL. CHIP 10uF 6.3V 1-135-259-11	←	××	××	××
C531	TANTAL. CHIP 47uF 4V 1-104-908-11	TANTAL. CHIP 33uF 4V 1-104-752-11	TANTAL. CHIP 47uF 4V 1-104-908-11	TANTAL. CHIP 33uF 6.3V 1-104-752-11	TANTAL. CHIP 47uF 6.3V 1-104-908-11
C532	CERAMIC CHIP 0.01uF 25V 1-162-970-11	CERAMIC CHIP 0.1uF 16V 1-107-826-11	CERAMIC CHIP 0.01uF 25V 1-162-970-11	←	←
C533	CERAMIC CHIP 0.01uF 25V 1-162-970-11	←	METAL CHIP 0 1/16W 1-216-864-11	←	←
C534	CERAMIC CHIP 0.01uF 50V 1-164-232-11	××	CERAMIC CHIP 3300pF 50V 1-164-182-11	××	←
C535	TANTAL. CHIP 33uF 6.3V 1-104-752-11	←	TANTAL. CHIP 10uF 6.3V 1-135-259-11	TANTAL. CHIP 22uF 6.3V 1-104-847-11	TANTAL. CHIP 10uF 6.3V 1-135-259-11
C536	××	××	××	××	××
C537	CERAMIC CHIP 0.22uF 16V 1-164-489-11	←	←	←	←
C538	TANTAL. CHIP 22uF 4V 1-104-847-11	××	××	××	××
C539	××	××	××	××	××
C540	TANTALUM CHIP 2.2uF 10V 1-135-149-11	××	TANTALUM CHIP 10uF 6.3V 1-135-259-11	××	TANTALUM CHIP 10uF 20V 1-135-259-11
C541	××	××	××	××	××
C542	CERAMIC CHIP 0.47uF 16V 1-107-823-11	←	××	××	××
C543	TANTAL. CHIP 47uF 4V 1-104-908-11	←	TANTAL. CHIP 4.7uF 16V 1-135-155-11	TANTAL. CHIP 10uF 20V 1-135-157-11	TANTAL. CHIP 4.7uF 16V 1-135-155-11
C544	CERAMIC CHIP 0.22uF 16V 1-164-489-11	××	××	××	××
C545	××	××	××	××	××
C546	ELECT CHIP 47uF 6.3V 1-126-205-11	ELECT CHIP 100uF 4V 1-126-209-11	ELECT CHIP 47uF 6.3V 1-126-205-11	ELECT CHIP 33uF 10V 1-126-393-11	←
C548	TANTALUM CHIP 4.7uF 6.3V 1-135-181-21	TANTALUM CHIP 22uF 4V 1-104-847-11	TANTALUM CHIP 15uF 6.3V 1-135-217-11	TANTALUM CHIP 10uF 6.3V 1-135-259-11	TANTALUM CHIP 15uF 6.3V 1-107-685-11
C549	××	××	××	CERAMIC CHIP 6800pF 25V 1-162-969-11	××
C550	TANTALUM CHIP 2.2uF 10V 1-135-149-21	←	TANTALUM CHIP 22uF 4V 1-104-847-11	××	←
C551	××	××	××	CERAMIC CHIP 0.01uF 25V 1-162-970-11	××

Destination	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5
Ref. No.	Part No./Description	Part No./Description	Part No./Description	Part No./Description	Part No./Description
C552	xx	xx	xx	xx	xx
C553	CERAMIC CHIP 4700PF 50V 1-162-968-11	xx	xx	xx	xx
C554	xx	xx	TANTALUM CHIP 1uF 16V 1-135-091-00	CERAMIC CHIP 4.7uF 25V 1-135-181-21	CERAMIC CHIP 4.7uF 25V 1-135-181-21
C555	xx	xx	TANTALUM CHIP 0.47uF 25V 1-135-259-11	CERAMIC CHIP 0.47uF 25V 1-135-083-11	←
C556	TANTALUM CHIP 2.2uF 10V 1-135-149-21	←	TANTALUM CHIP 4.7uF 25V 1-135-181-21	xx	←
C557	CERAMIC CHIP 0.01uF 50V 1-164-232-11	←	CERAMIC CHIP 0.22uF 16V 1-164-489-11	CERAMIC CHIP 0.01uF 50V 1-164-232-11	←
C558	CERAMIC CHIP 0.47uF 16V 1-107-823-11	←	CERAMIC CHIP 1uF 10V 1-109-982-11	CERAMIC CHIP 6800pF 50V 1-163-019-11	←
C561	TANTAL. CHIP 10uF 6.3V 1-135-259-11	←	xx	←	←
C563	TANTAL. CHIP 10uF 6.3V 1-135-259-11	xx	xx	xx	xx
C564	CERAMIC CHIP 0.1uF 16V 1-107-826-11	xx	xx	xx	xx
C565	CERAMIC CHIP 4700PF 50V 1-162-968-11	xx	xx	xx	xx
C567	xx	xx	xx	xx	xx
C568	xx	xx	xx	xx	xx
Q501	TRANSISTOR UN5115 8-729-420-53	←	←	←	←
Q503	TRANSISTOR 2SC4555-5.6.7 8-729-823-16	xx	xx	xx	xx
Q504	TRANSISTOR 2SC4555-5.6.7 8-729-823-16	xx	xx	xx	xx
Q506	TRANSISTOR UN5216QRS-TX 8-729-421-26	xx	xx	xx	xx
Q507	TRANSISTOR UN5216QRS-TX 8-729-421-26	←	←	←	←
Q510	TRANSISTOR UN5213-TX 8-729-402-42 **NOTE 2**	←	←	←	←
Q511	TRANSISTOR UN5213-TX 8-729-402-42	xx	←	xx	xx
R501	METAL CHIP 4.7K 1/16W 1-216-829-11	METAL CHIP 5.6K 1/16W 1-216-830-11	METAL CHIP 470K 1/16W 1-216-853-11	METAL CHIP 3.3M 1/16W 1-216-863-11	←
R502	METAL CHIP 1.8K 1/16W 1-216-824-11	xx	xx	xx	xx
R503	METAL CHIP 120K 1/16W 1-218-897-11	METAL CHIP 100K 1/16W 1-218-895-11	METAL CHIP 0 1/16W 1-216-864-11	METAL CHIP 150K 1/16W 1-216-847-11	METAL CHIP 0 1/16W 1-216-864-11
R505	METAL CHIP 120 1/16W 1-216-810-11 **NOTE 1**	xx	←	xx	←
R506	METAL CHIP 120K 1/16W 1-218-897-11	METAL CHIP 220K 1/16W 1-218-903-11	METAL CHIP 82K 1/16W 1-218-893-11	METAL CHIP 180K 1/16W 1-218-901-11	←
R507	METAL CHIP 120 1/16W 1-216-810-11	xx	←	xx	←
R511	METAL CHIP 15K 1/16W 1-218-875-11	METAL CHIP 22K 1/16W 1-218-879-11	xx	METAL CHIP 680K 1/16W 1-218-915-11	xx
R512	METAL CHIP 0 1/16W 1-216-864-11	xx	xx	xx	xx
R513	METAL CHIP 4.7K 1/16W 1-216-829-11	xx	xx	xx	xx

Destination	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5
Ref. No.	Part No./Description	Part No./Description	Part No./Description	Part No./Description	Part No./Description
R514	METAL CHIP 10K 1/16W 1-216-833-11	METAL CHIP 22K 1/16W 1-216-837-11	METAL CHIP 6.8K 1/16W 1-216-831-11	METAL CHIP 10K 1/16W 1-216-833-11	METAL CHIP 6.8K 1/16W 1-216-831-11
R515	METAL CHIP 220 1/16W 1-216-813-11	METAL CHIP 4.7K 1/16W 1-216-829-11	METAL CHIP 0 1/16W 1-216-864-11	←	←
R516	METAL CHIP 120K 1/16W 1-218-897-11	××	××	××	××
R517	METAL CHIP 470K 1/16W 1-216-853-11	METAL CHIP 1M 1/16W 1-216-857-11	METAL CHIP 100K 1/16W 1-216-845-11	METAL CHIP 1M 1/16W 1-216-857-11	METAL CHIP 100K 1/16W 1-216-845-11
R519	××	××	××	××	××
R520	××	××	METAL CHIP 0 1/16W 1-216-864-11	←	←
R522	METAL CHIP 470 1/16W 1-216-817-11	←	←	←	←
R523	METAL CHIP 2.2K 1/16W 1-216-825-11	MTTAL CHIP 10K 1/16W 1-216-833-11	METAL CHIP 2.2K 1/16W 1-216-825-11	××	METAL CHIP 10K 1/16W 1-216-883-11
R525	××	××	METAL CHIP 47K 1/16W 1-216-841-11	××	←
R526	METAL CHIP 470 1/16W 1-216-817-11	××	××	××	××
R527	METAL CHIP 470K 1/16W 1-216-853-11	××	××	××	××
R528	METAL CHIP 4.7K 1/16W 1-216-829-11	××	××	××	××
R529	METAL CHIP 4.7K 1/16W 1-216-829-11	××	××	××	××
R530	××	××	METAL CHIP 1M 1/16W 1-216-857-11	××	METAL CHIP 1M 1/16W 1-216-857-11
R531	METAL CHIP 470 1/16W 1-216-817-11	←	←	←	←
R532	METAL CHIP 470 1/16W 1-216-817-11	××	××	××	××
R533	METAL CHIP 0 1/16W 1-216-864-11	××	××	××	××
R534	××	××	METAL CHIP 0 1/16W 1-216-864-11	××	←
R535	××	××	××	××	××
R536	××	××	××	××	××
R537	METAL CHIP 4.7K 1/16W 1-216-829-11	METAL CHIP 0 1/16W 1-216-864-11	←	←	←
R538	METAL CHIP 0 1/16W 1-216-864-11 **NOTE 3**	××	←	←	←
R556	METAL CHIP 470K 1/16W 1-216-853-11	←	←	←	←
R557	METAL CHIP 47K 1/16W 1-216-841-11	××	××	××	××
R558	METAL CHIP 47K 1/16W 1-216-841-11	××	××	××	××
R560	××	××	××	××	××
CN501	CONNECTOR,FFC/FPC(LIF) 8P 1-764-707-21	←	←	←	←

Correct your service manual as shown below.

: Correct errors portion.

(Page 6-16)

10. Flange back adjustment

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Check that the center of the flange back adjustment chart coincides with that of the display on the monitor at both ends: TELE end and the WIDE end of the zoom lens.
2	6	00	01	After setting the data, press the PAUSE button. (Preparation)
3				Confirm that the data at page F, address 3C to 41 is the initial value, referring to the "Page F address list".
4	6	11		Confirm that the data is 00.
5	6	42	02	After setting the data, press the PAUSE button.
6	6	43	01	After setting the data, press the PAUSE button.
7	6	01	13	After setting the data, press the PAUSE button.
8	6	01	15	After setting the data, press the PAUSE button. The adjustment data is automatically input to page: F, addresses: 3C to 41.
9	6	11		Confirm that the data is 01.

★ **The Zoom SW (S003) which is mounted on the DD-80P board is moved outside the board.**

EXPLODED VIEWS

⟨Page 5-5⟩ 5-1-5. MAIN SECTION

The Zoom SW in the illustration 205 A-7092-573-A DD-80P BOARD, COMPLETE is not included.

⟨Page 5-5⟩ S003 1-762-441-11 SWITCH ROTARY (ZOOM SW)................................Added.

ELECTRICAL PARTS LIST

⟨Page 5-12⟩ From the DD-80P BOARD, COMPLETE

S003 1-762-441-11 SWITCH ROTARY (ZOOM SW)................................Deleted.

- Add the following parts as MISCELLANEOUS at the end of ELECTRICAL PARTS LIST.

MISCELLANEOUS

****

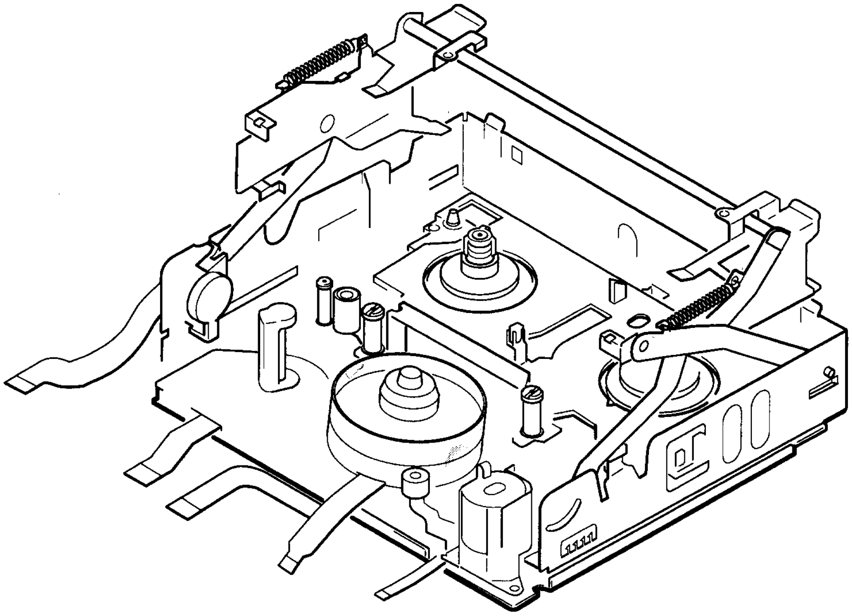
61	1-542-259-11	MICROPHONE, CAP
66	1-775-517-11	CABLE, FLEXIBLE FLAT 8P (TR520E)
66	1-777-088-11	CABLE, FLEXIBLE FLAT 8P (TR340E)
103	1-775-520-11	CABLE, FLEXIBLE FLAT 45P
106	1-660-437-11	FP-427 FLEXIBLE BOARD (TR520E)
110	1-801-215-11	DISPLAY PANEL, LIQUID CRYSTAL (TR520E)
120	1-776-866-11	CABLE, FLEXIBLE FLAT 6P
124	1-517-529-11	LIGHT, BACK (TR520E)
158	1-657-866-11	FP-283 FLEXIBLE BOARD
⚠159	1-452-673-31	CRT ASSY (M01KXX90WB)
203	1-660-436-11	FP-403 FLEXIBLE BOARD
207	1-775-516-11	CABLE, FLEXIBLE FLAT 16P
209	1-547-739-21	LENS, ZOOM (VCL-5412WB)(TR520E)
209	1-547-833-11	LENS, ZOOM (VCL-6310WA)(TR340E)
211	1-547-558-21	FILTER BLOCK, OPTICAL (TR340E)
211	1-547-735-51	FILTER BLOCK, OPTICAL (TR520E)
218	1-660-435-11	FP-402 FLEXIBLE BOARD (TR520E)
762	1-657-786-11	FP-221 FLEXIBLE BOARD
803	1-657-785-11	FP-248 FLEXIBLE BOARD
817	1-657-784-11	FP-220 FLEXIBLE BOARD
M901	A-7048-806-A	DRUM BLOCK ASSY(DGH-0C2A-R)
M902	8-835-531-01	MOTOR, DC SCE-0601A (CAPSTAN)
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)
S003	1-762-441-11	SWITCH, ROTARY (ZOOM SW)
S901	1-762-436-11	SWITCH, ROTARY (ENCODER)

8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ

B MECHANISM

Video8

Use this mechanical adjustment manual Ⅶ together with the service manual of the respective models.



8 MECHANISM DECK

SONY®

MICROFILM

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For the mode selector operation, schematic diagram and parts list, refer to the Supplement-1 Manual.

1. PREPARATION FOR CHECKING, ADJUSTING AND REPLACING THE MECHANISM

For the disassembly procedures of the cabinet and printed wiring boards, please refer to the "DISASSEMBLY" section of the service manual of the respective models.

To re-assemble the mechanical parts which are disassembled in the following sections, perform the disassembly steps in reverse, unless otherwise specified.

The mechanisms are adjusted while set in the $\boxed{\text{USE}}$ mode of operation. (Refer to the "Mode Selector Operation Procedure of the Supplement-1 Manual for how to enter the $\boxed{\text{USE}}$ mode.)

1-1. Cassette Compartment Block Assy

1. Disassembly Procedure (Refer to Fig. 1.)

1) Set the mechanism to $\boxed{\text{USE}}$ mode.
2) Confirm that the Cassette Compartment Block Assy is opened. If it is not opened, open it referring to Fig. a.
3) Remove the claws Ⓐ and Ⓑ of the Damper Assy ① from the chassis.
4) Remove the washer ② from the shaft of the Cassette Compartment near the Drum, next to the loading motor. Remove the shaft of the arm from the slot.
5) Remove the shaft of the arm from the slot Ⓒ of the Cassette Compartment near the Drum, next to the capstan motor. (Refer to Fig. b)
6) Lift up the Cassette Compartment at the Drum side in the direction of the arrow Ⓓ, and remove the arm shaft of the Cassette Compartment from the LS Chassis ④ near the Reel Tables. Remove the Cassette Compartment Assy ③ in the direction of the arrow Ⓔ.

2. Precautions During Re-Assembling

1) After attaching the Tension Spring, confirm that the straight portion at the end of the curved hook of the spring is positioned inside the mechanism. (Refer to Fig. c)
2) Confirm that the claw in the bottom of the shaft near the Reel Table of the Cassette Compartment is hooked to the LS Chassis.
3) Confirm that the claw of the Damper Assy is hooked to the LS Chassis. (Refer to Fig. b)

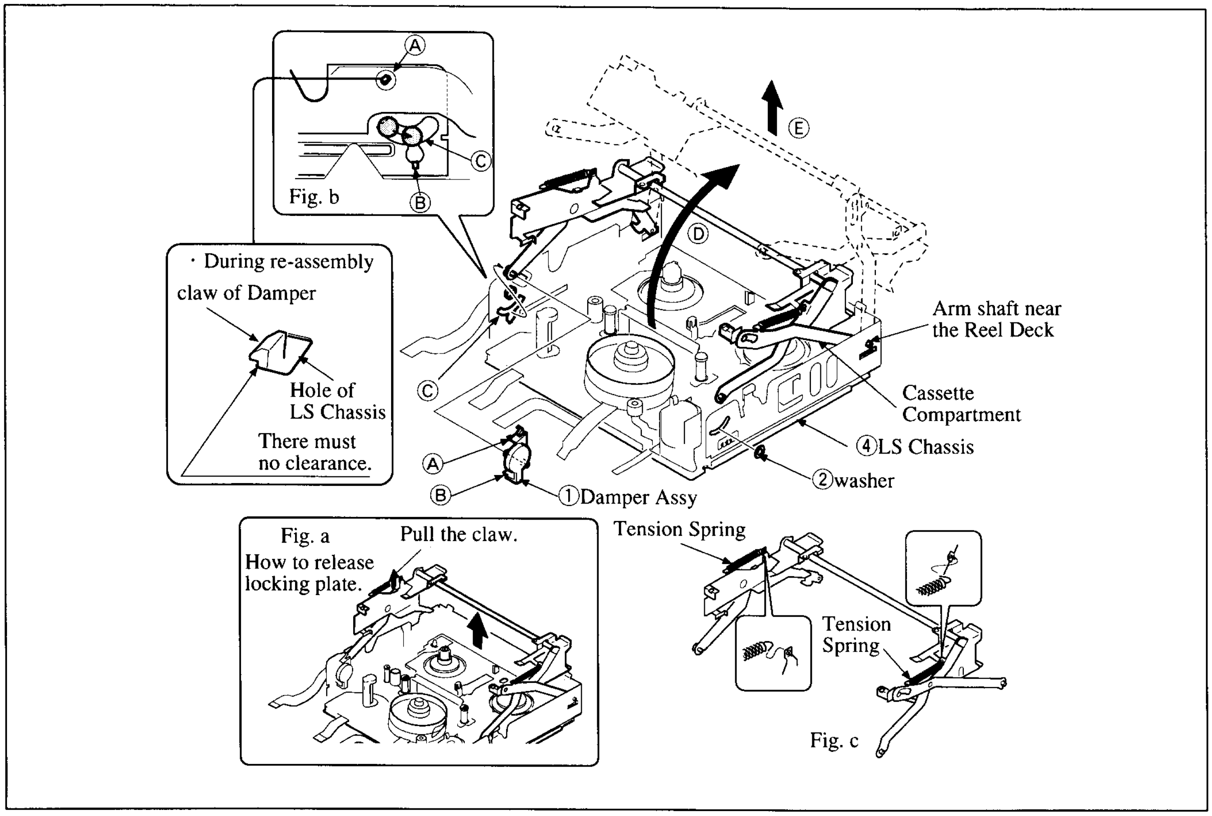

Ⓐ
Ⓒ
Fig. b
Ⓑ
Ⓔ
Ⓓ
· During re-assembly
claw of Damper
Hole of
LS Chassis
There must
no clearance.
Ⓒ
Ⓐ
Ⓑ
①Damper Assy
Arm shaft near
the Reel Deck
Cassette
Compartment
④LS Chassis
②washer
Fig. a
Pull the claw.
How to release
locking plate.
Tension Spring
Tension
Spring
Fig. c

Fig. 1

1-2. How to Operate the Mechanism with the Cassette Compartment Block Assy Removed

1. How to load a cassette tape (Refer to Fig. 2):

1) While referring to section "DISASSEMBLY" of the respective service manual, turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
2) Connect the adjustment remote commander (Ref. No. J-10) and establish the TEST mode.

> Example of establishing the TEST mode: model CCD-TR420E/TR440E.
> Select page: 6, address: 00, set data :01 and press the PAUSE button to release protection.
> Select page: 7, address: 01, set data: 01 and press the PAUSE button.
> After tape loading or other desired operations of mechanism are completed, be sure to perform the following:
> Select page: F, address: 01, set data :00 and press the PAUSE button.
> Select page: 6, address: 00, set data: 00 and press the PAUSE button.

3) Press the push-switch ① knob in the direction of the arrow which sets the machine into loading mode.

☆ PB, FF/REW and CUE/REV operations are possible.

2. How to establish RECORD mode:

1) Press pin of the push-switch ② (ON state) and keep the ON state by fixing with adhesive tape ③.
2) Turn the main power switch ON (select VTR or CAMERA position of in case of camera).
3) Set the RECORD switch to ON.
(When the TEST mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

1) Press the EJECT switch to ON.

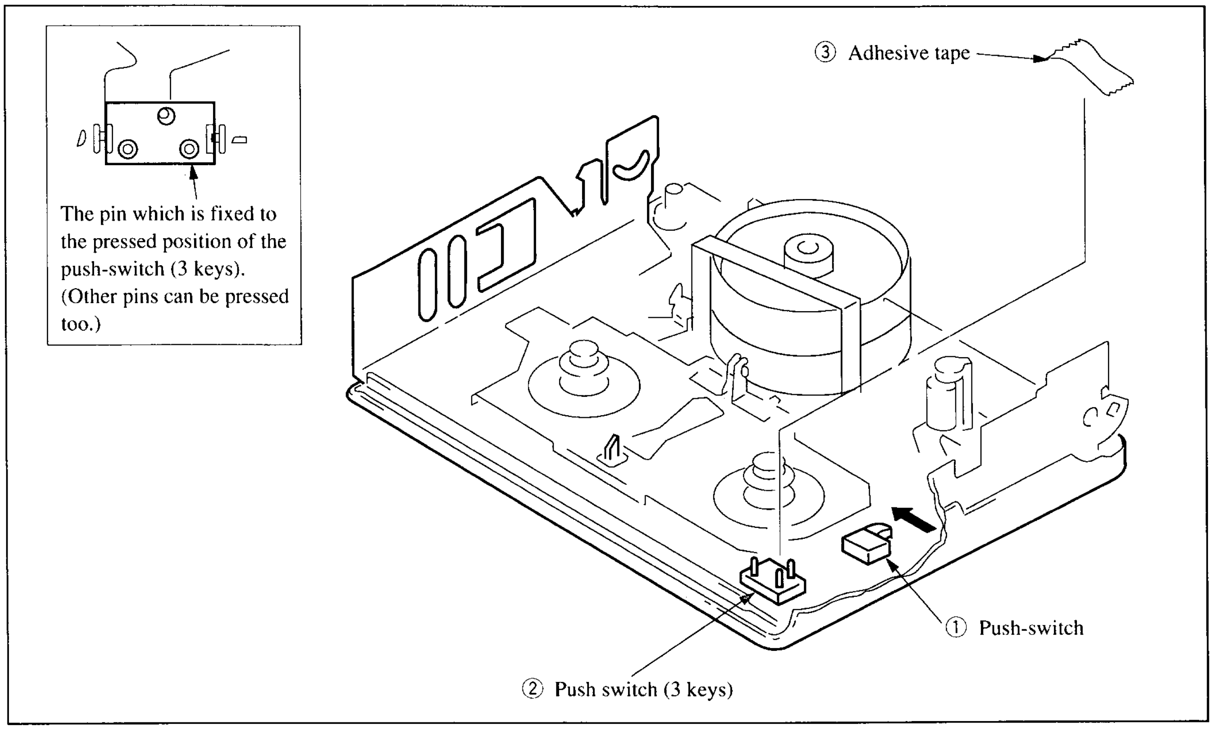

The pin which is fixed to the pressed position of the push-switch (3 keys). (Other pins can be pressed too.)

Fig. 2

2. PERIODIC CHECK AND MAINTENANCE ITEMS

- Perform the following periodic check and maintenance to ensure that the machine functions continue to operate in peak condition, and to protect the tape and mechanism deck. After completing repair work, perform the following maintenance items regardless of how long the user's machine has been used.

2-1. Rotary Drum Assy Cleaning

Press the cleaning piece (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly on the Rotary Drum Assy. Gently turn the Rotary Drum Assy slowly by hand counter-clockwise to clean the rotary drum.

Caution: Never attempt to turn the head drum motor by turning the main power ON. Also, never turn the drum clockwise by hand. In addition, never move the cleaning piece vertically with respect to the head tips, since this will damage them. Never clean the head drum in any way other than as described above.

2-2. Tape Path Cleaning (Refer to Fig. 3.)

1) Set the mechanism to USE mode. Clean the tape path system (TG-1, TG-2, TG-3, TG-4, pinch roller, capstan shaft) and lower drum using a very thin cotton swab (Ref. No. J-3) moistened with cleaning fluid.

Caution: Take care that the very thin cotton swab (Ref. No. J-3) does not touch the oil or grease of the various link mechanisms.

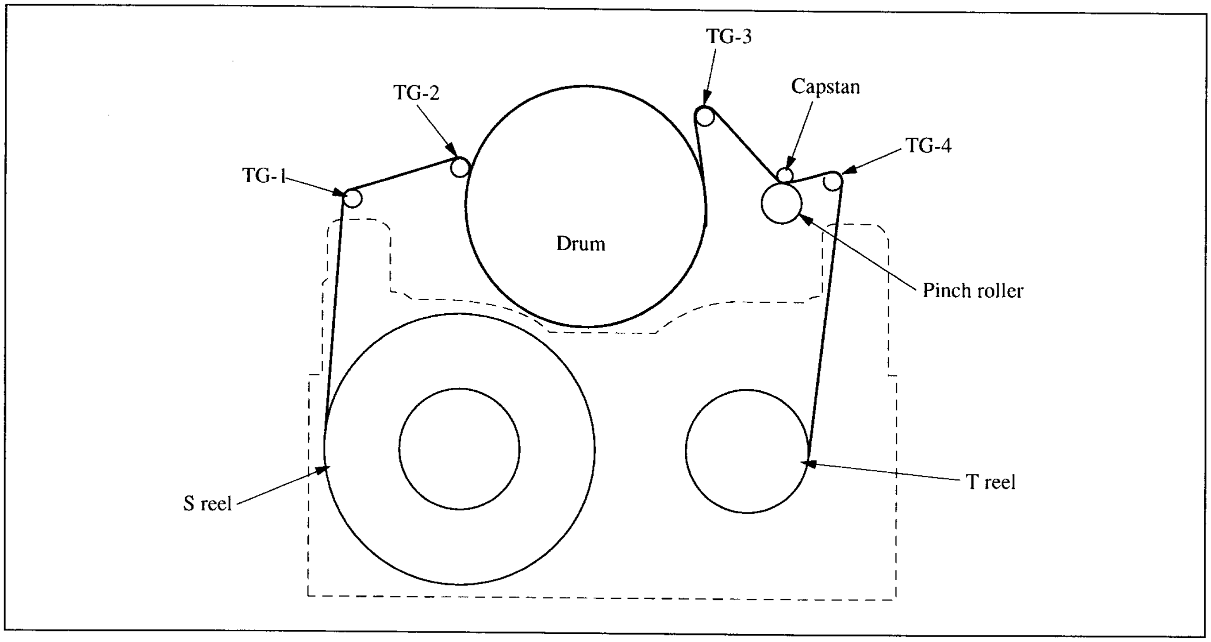


Fig. 3

2-3. Periodic Check Items

	Maintenance and Inspection Points	Operating Hours										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Cleaning of tape running surface	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
	Cleaning and degaussing of Rotary Drum Assy	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
Drive System	Timing Belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-965-546-01
	Capstan Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Take great care not to let any oil contact the tape running surface.
	Change Gear Shaft Relay Pulley Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	
	Loading Motor	—	☆	—	☆	—	☆	—	☆	—	☆	X-3945-401-1
Performance Check	Abnormal Sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Tape Hold-back Tension Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake System	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD } Torque RVS } Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○Cleaning ◎Lubrication ☆Check

Note: When overhauling the machine, replace the parts while referring to the above table.

Note: Regarding oil

- Be sure to use the specified oil. (If the viscosity and other characteristics are different, various troubles may arise.)
  Oil: Sony part No. 7-661-018-18
  (Mitsubishi diamond oil hydro fluid NT-68)
- For the oil lubricated bearings, use oil free from dust or foreign materials. If the oil contains any dust or foreign material, the bearings will wear out quickly or burn out.
- One drop of oil is the amount of oil which forms at the tip of a stick of 2 mm diameter.

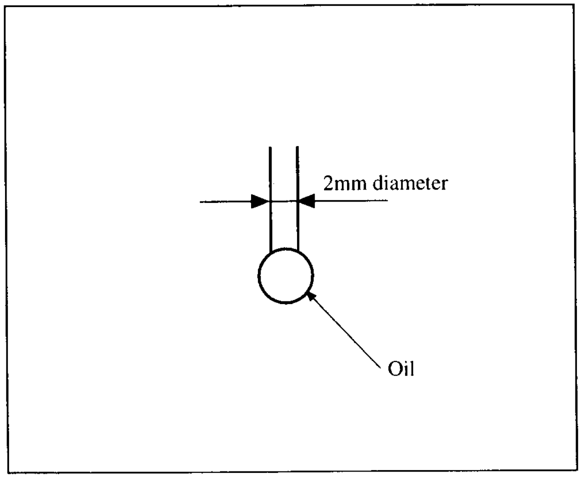


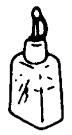
Fig. 4

2-4. Service Tool List

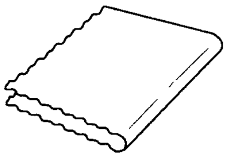
Ref. No.	Name	Parts Code	Tool Stamp	Applications
J-1	Cleaning fluid	Y-2031-001-0	——	
J-2	Cleaning piece	2-034-697-00	——	
J-3	Very thin cotton swab (made by Nippon Cotton Swab Inc. (P752D))		——	
J-4	Head demagnetizer	Commercially available	——	
J-5	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-6	Alignment tape (NTSC : WR5-1NP) (PAL : WR5-1CP)	8-967-995-02 8-967-995-07	——	Tape path
J-7	FWD/RVS take-up torque cassette	J-6080-824A	GD-2086	
J-8	Screwdriver for tape path adjustment	J-6082-026-A	——	For tape guide adjustment
J-9	FWD/BACK tension adjustment screwdriver	J-6082-187-A	——	
J-10	Remote commander for adjustment	J-6082-053-B	——	Tape path (Setting PATH mode)
J-11	MD process table	J-6082-166-A	——	
J-12	FLOIL Grease SG-941	7-662-001-39	——	
J-13	FLOIL Grease SG-055G	7-651-000-09	——	

Other equipment
- Oscilloscope
- Analog circuit tester (input impedance 20 kΩ)

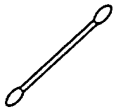
J-1



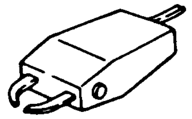
J-2



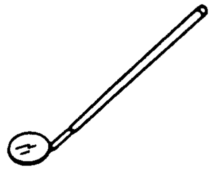
J-3



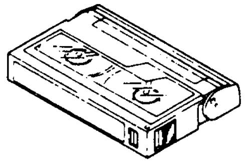
J-4



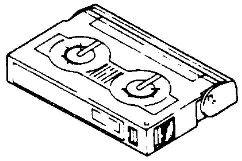
J-5



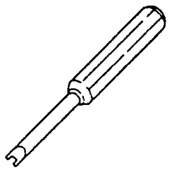
J-6



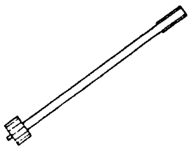
J-7



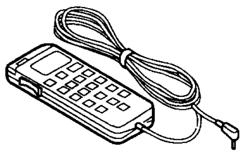
J-8



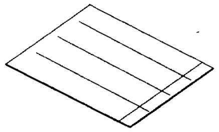
J-9



J-10

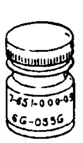


J-11



J-12

J-13



3. CHECKING, ADJUSTING AND REPLACING THE MECHANISM

3-1. HC Roller Block Assy (Refer to Fig. 5)

1. Disassembly Procedure

1) Remove the Torsion Spring ① from the cut-out Ⓐ of the motor holder. Hook it to the claw Ⓑ of the HC Arm.
2) Remove the HC Roller Block Assy in the direction shown by Ⓒ.
3) Remove the stop washer ② and remove the HC Roller Block Assy ③.

2. Precautions During Re-Assembly

1) After attaching the HC Roller Block Assy, confirm that both ends of the torsion spring are hooked to Ⓐ and Ⓓ.
2) Align the block so that the cut-out Ⓔ agrees with the rib Ⓕ.

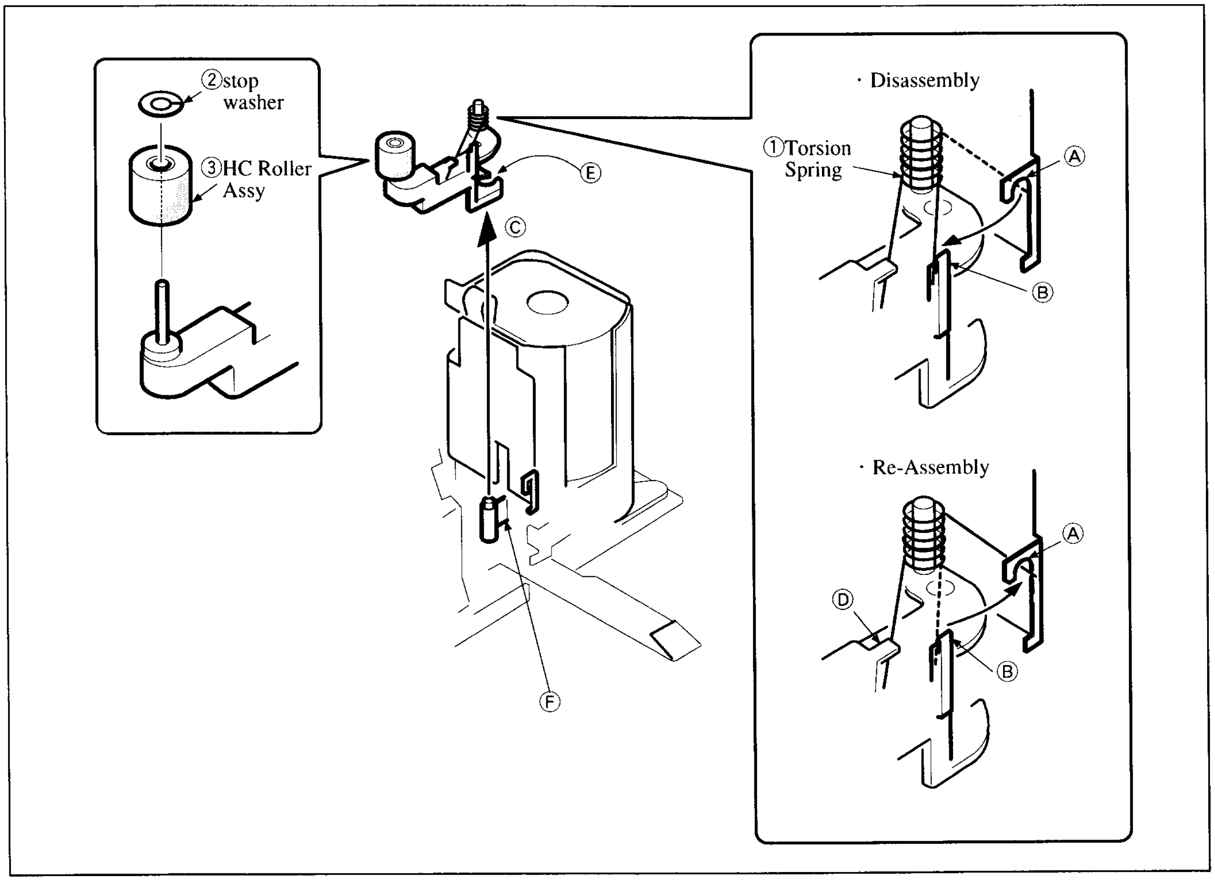

②stop washer
③HC Roller Assy
Ⓔ
Ⓒ
Ⓕ
· Disassembly
①Torsion Spring
Ⓐ
Ⓑ
· Re-Assembly
Ⓐ
Ⓓ
Ⓑ

Fig. 5

3-2. Drum Assy (Refer to Fig. 6)

1. Disassembly Procedure

1) Set the mechanism to USE mode.
2) Remove the three screws (M 1.4) ① and remove the Drum Assy ②.

Caution: Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)

2. Precautions During Re-Assembly

1) Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)
2) When tightening the three screws (M 1.4), tighten them in the order Ⓒ, then Ⓓ, then Ⓔ.
3) After attaching the Drum Assy, perform the steps in section "4. TAPE PATH ADJUSTMENT".

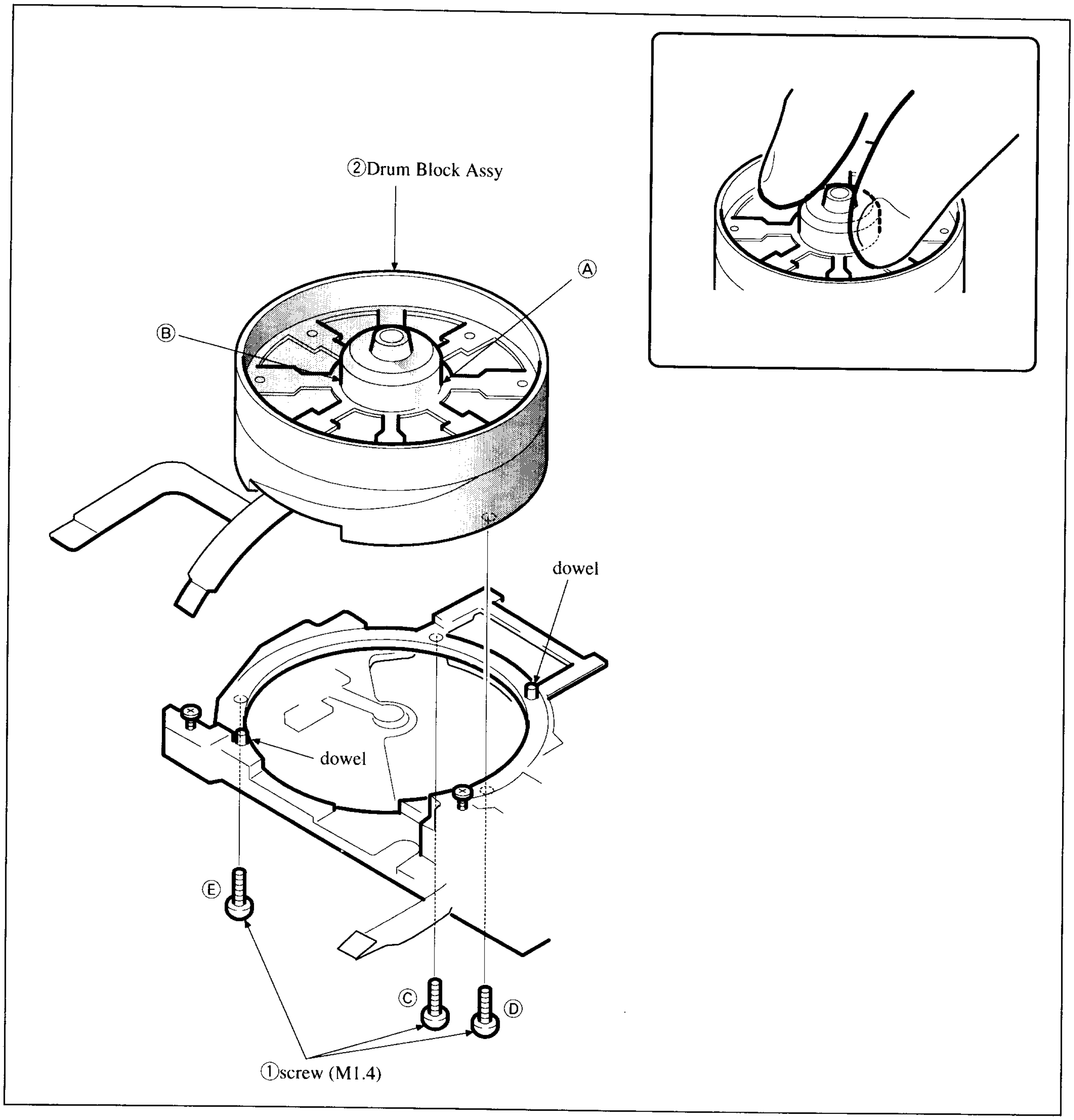


Fig. 6

3-3. Drum Base Block Assy, Shaft Ground (Refer to Fig. 7)

1. Disassembly Procedure

1) Remove the Drum Assy referring to section 3-2.
2) Remove the three screws (M 1.4×2.5) ① and remove the Drum Base Block Assy ②.
3) Remove the screw (M 1.7×1.4) ③ and remove the Shaft Ground ④.

Caution 1: Do not hold the spring portion of the Shaft Ground ④.

Caution 2: The loading motor can be removed while the mechanism is in this state. However, do not move any other mechanical parts (especially gears and cams around the rotary switch) when removing the loading motor. (Refer to 3-11.)

2. Precautions During Re-Assembly

1) Do not touch the spring portion of the Shaft Ground ④.
2) When tightening the three screws (M 1.4×2.5), tighten them in the order of Ⓐ, then Ⓑ, then Ⓒ.
3) After re-assembly is completed, perform the steps in section "4. TAPE PATH ADJUSTMENT".

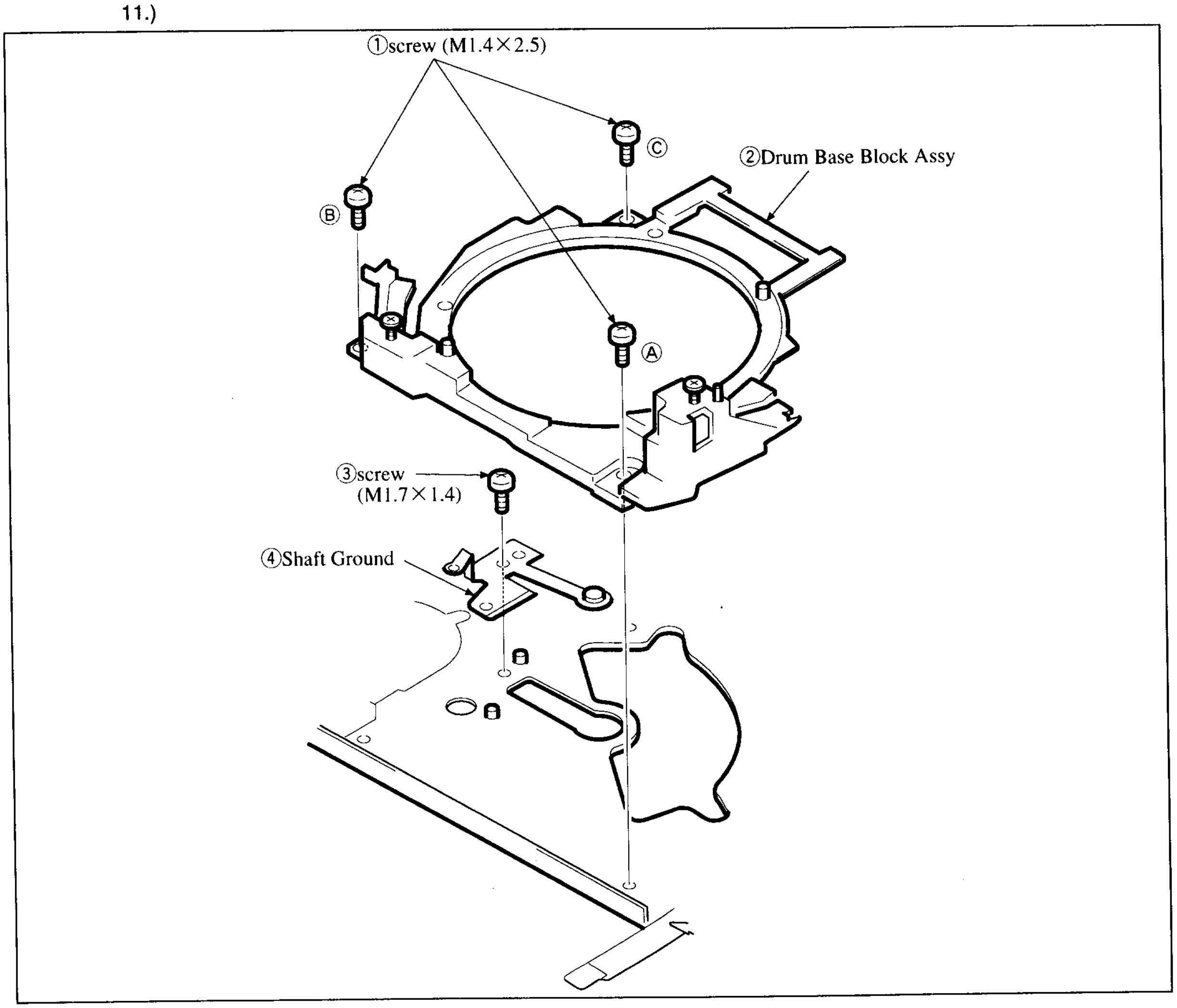


Fig. 7

3-4. Gooseneck Retainer, Gooseneck Gear Assy (Refer to Fig. 8)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the LED ① from the LED holder of the Gooseneck Retainer ③.
   (Turn the flexible board 90° outside and remove it upward.)
3) Remove the three screws (M 1.4×2.5) ② and remove the Gooseneck Retainer ③.
4) Remove the stop washer ④ and remove the Gooseneck Gear Assy ⑤.

2. Precautions During Re-Assembly

1) When attaching the Gooseneck Retainer ③, take care that the Gooseneck Retainer ③ does not collide with the tension regulator band. (The tension regulator band must be located inside.)
2) Hook the T-side claw on the guide.

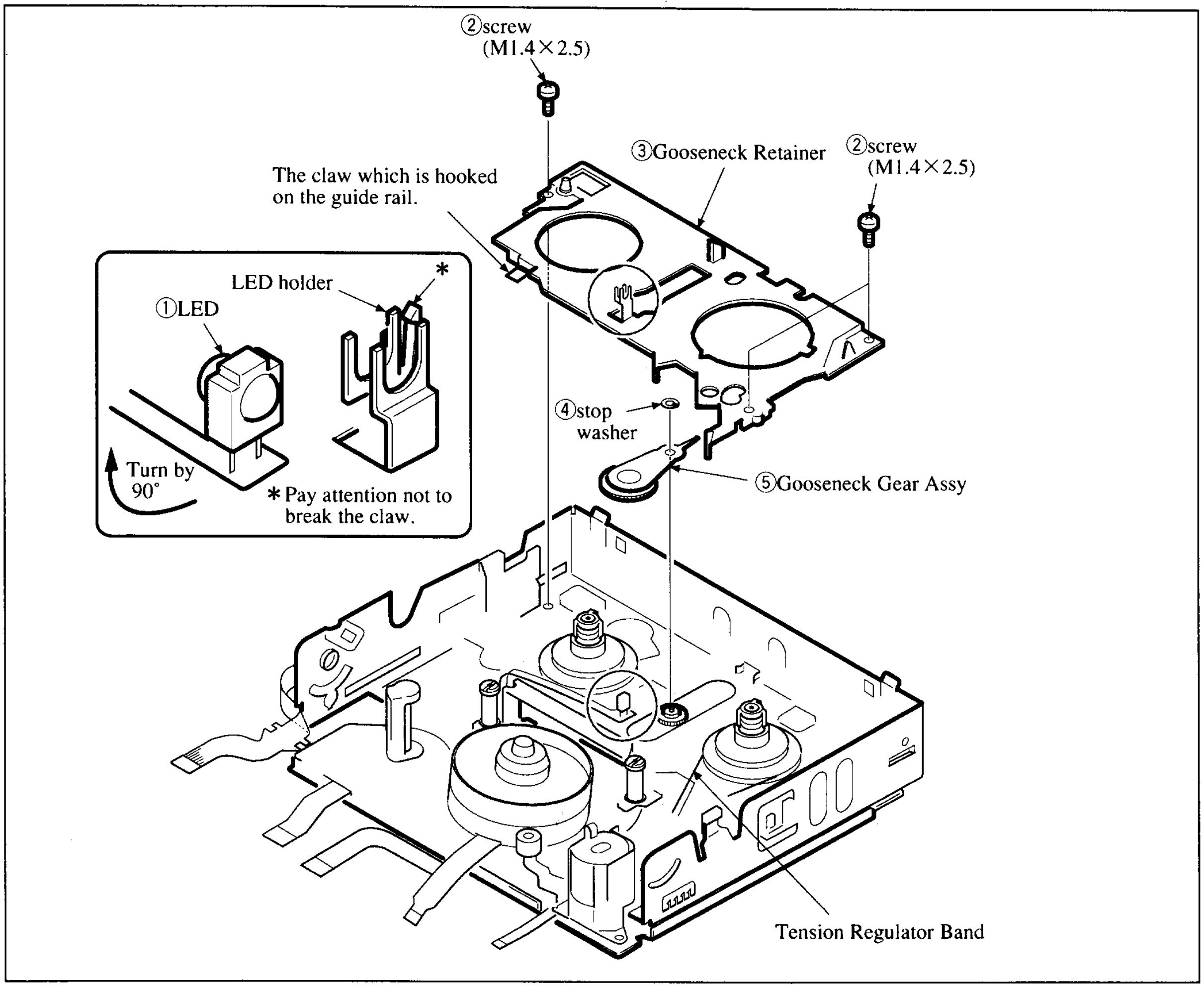

②screw
(M1.4×2.5)
③Gooseneck Retainer
②screw
(M1.4×2.5)
The claw which is hooked on the guide rail.
LED holder
*
①LED
Turn by 90°
* Pay attention not to break the claw.
④stop washer
⑤Gooseneck Gear Assy
Tension Regulator Band

Fig. 8

3-5. LS Chassis Block Assy, Mechanical Chassis Block Assy (Refer to Fig. 9)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the FP-221 flexible board ① from the flexible board holder.
4) Remove the stop ring E1.5 ②.
5) Remove the two screws (M 1.4×2.5) ③ and remove the LS Chassis Block Assy ④ from the Mechanical Chassis Block ⑤ in the direction of the arrow Ⓐ.

Note: The Tension Regulator Plate (2) can easily fall into the Mechanical Chassis Block Assy. Take care not to drop it.

2. Precautions During Re-Assembly

1) Before attaching the LS Chassis Block Assy, confirm that the respective phase-determining holes have been adjusted for correct phase. Also confirm that the specified locations of the Mechanical Chassis Block Assy and the LS Chassis Block Assy are coated with grease SG-055G (Ref. No. J-13). (Refer to Fig. a)
2) When attaching the LS Chassis Block Assy, insert the LS Cam Plate (on the LS chassis side) into the dowel (on the mechanical chassis side). Also insert the TG1 Cam Axis (on the LS chassis side) into the Tension Regulator Plate (2) (on the mechanical chassis side).
3) When attaching these block assemblies, attach them while pressing the TG-1 Arm Assy in the direction toward the TG-2 Guide. (Refer to Fig. b)
4) Pay attention that the TG-1 Arm is not floated.

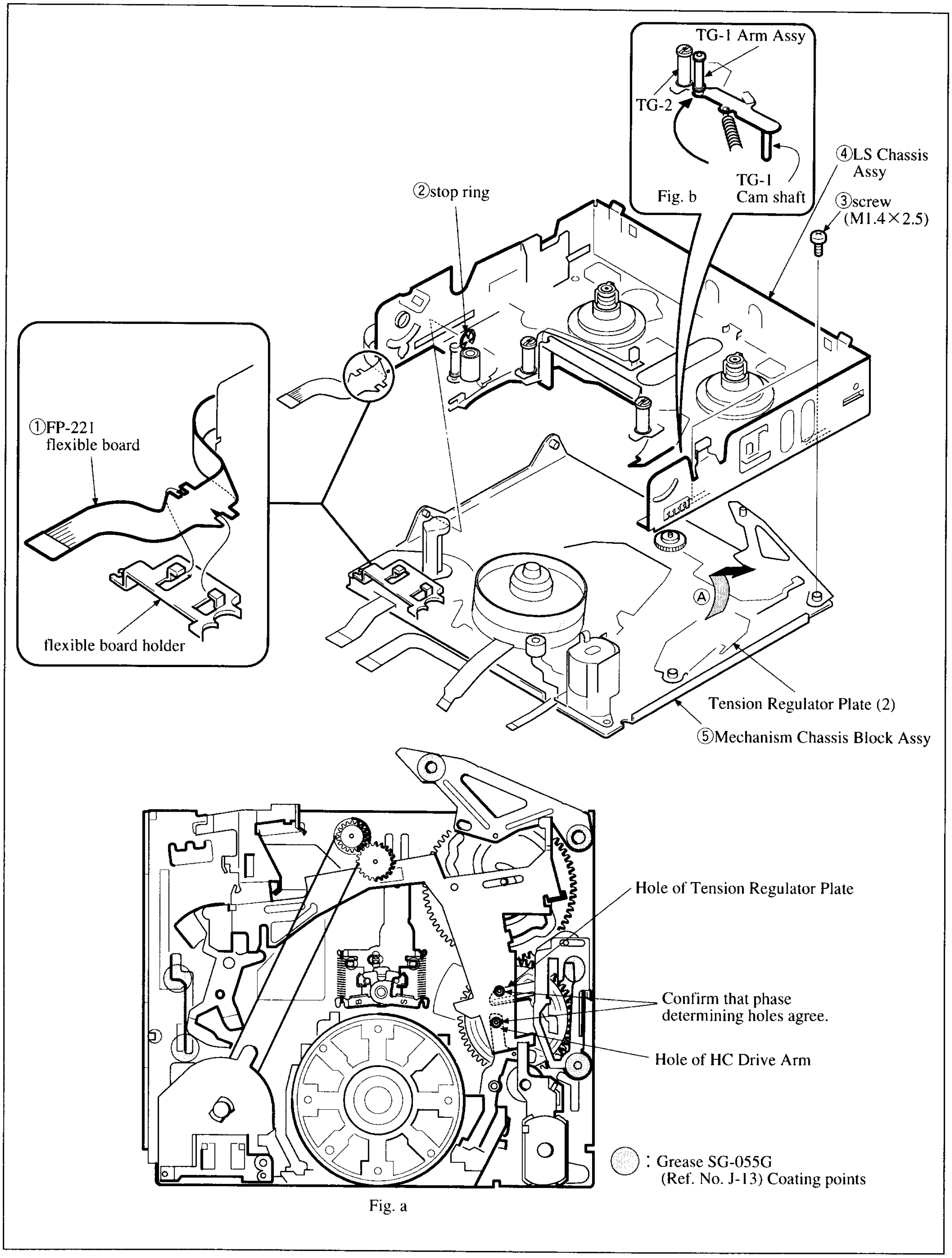

TG-1 Arm Assy
TG-2
TG-1
Cam shaft
Fig. b
②stop ring
④LS Chassis
Assy
③screw
(M1.4×2.5)
①FP-221
flexible board
flexible board holder
Ⓐ
Tension Regulator Plate (2)
⑤Mechanism Chassis Block Assy
Hole of Tension Regulator Plate
Confirm that phase
determining holes agree.
Hole of HC Drive Arm
▨ : Grease SG-055G
(Ref. No. J-13) Coating points
Fig. a

Fig. 9

- **PARTS CONSTITUTING THE LS CHASSIS.**

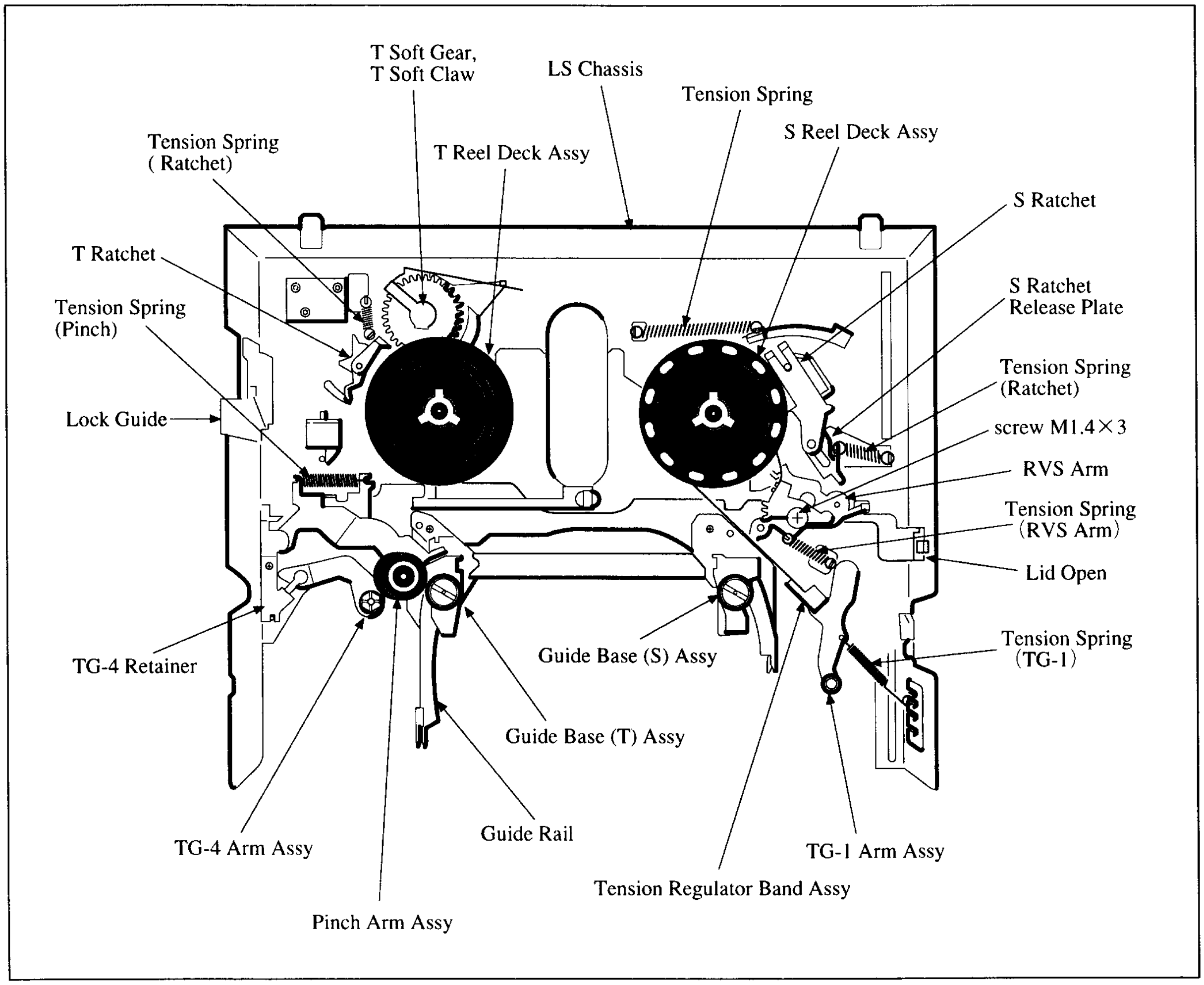

T Soft Gear,
T Soft Claw
LS Chassis
Tension Spring
S Reel Deck Assy
Tension Spring
(Ratchet)
T Reel Deck Assy
S Ratchet
T Ratchet
S Ratchet
Release Plate
Tension Spring
(Pinch)
Tension Spring
(Ratchet)
Lock Guide
screw M1.4×3
RVS Arm
Tension Spring
(RVS Arm)
Lid Open
Tension Spring
(TG-1)
TG-4 Retainer
Guide Base (S) Assy
Guide Base (T) Assy
Guide Rail
TG-4 Arm Assy
TG-1 Arm Assy
Tension Regulator Band Assy
Pinch Arm Assy

Fig. 10

3-6. T Reel Table Assy, T Ratchet, T Soft Gear Block Assy (Refer to Fig. 11)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the claw of the T Reel Deck Assy ① from the chassis and remove the T Reel Deck Assy from its shaft.
4) Remove the Tension Spring (Ratchet) ② from the LS Chassis and turn the T Ratchet ③ in the direction of the arrow Ⓐ and remove it .
5) Turn the T Soft Gear Block Assy ④ in the direction of the arrow Ⓑ and remove it .

2. Precautions During Re-Assembly

1) Confirm that the protrusions of both the T Soft Gear Block Assy and T Ratchet are securely locked to the LS Chassis.
2) Be careful not to deform the claw.

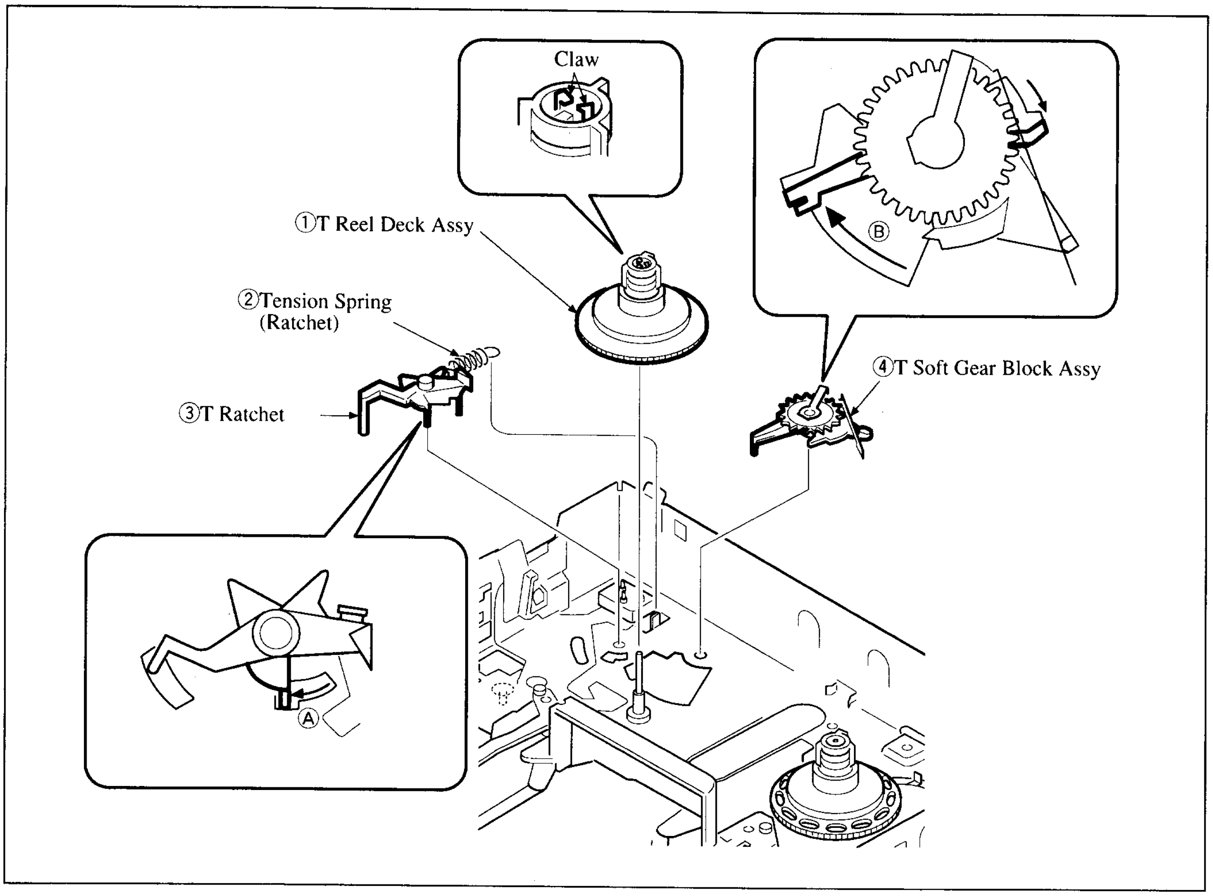


Fig. 11

3-7. Tension Regulator Band Assy, TG1 Arm Assy, S Reel Table Assy, S Ratchet, S Ratchet Release Plate, RVS Arm (Refer to Fig. 12)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the Tension Spring (TG1) ① from the LS Chassis.
4) Remove the screw (M 1.4×3) ② and remove the Tension Adjustment Block of the Tension Regulator Band Assy ④ form RVS Arm.
5) Release the S Ratchet ⑥ in the direction of the arrow Ⓐ and remove the Tension Regulator Band (while taking care not to bend the band) from the S Reel.
6) Remove the TG1 Arm Assy ③ from the LS Chassis, then remove the claw of the Tension Regulator Band Assy ④. (Refer to Fig. a)
7) Remove the claw of the S Reel Deck Assy ⑤ from the chassis and remove the S Reel Deck Assy from its shaft.
8) Remove the S Ratchet ⑥. (Because it is press-fitted, insert tip of screwdriver into the center of rotation and remove it.
9) Remove the Tension Spring (ratchet) ⑦ from the LS Chassis and remove the S Ratchet Release Plate ⑧.
10) Remove the Tension Spring ⑨ from the LS Chassis and remove the RVS Arm ⑩ by turning it..

2. Precautions During Re-Assembly

1) Confirm that the dowel of the S Ratchet Release Plate is inserted into the groove of the S ratchet and confirm that the center of the ratchet is press-fitted into bottom of the shaft. (It can be used again.)
2) When attaching the Tension Regulator Band Assy, take care not to bend it.
3) Pay attention that oil or grease is not spit on the surface of the Tension Regulated Band. (Pay attention also not to touch it with hand directly.)
4) Confirm that the tension regulator band is correctly inserted into the groove of the S Reel Deck Assy ⑤. (Refer to Fig. b)
5) When securing the Tension Adjustment Block using the screw, press it toward the position which gives the least tension, then tighten the fixing screw.
6) Before attaching the TG1 Arm Assy, coat the LS Chassis TG1 boss with oil (1/2 drop).
7) Do not touch the tape guide of the TG1 Arm Assy with bare hands.
8) Confirm that the claw of the S Reel Deck Assy is not deformed.

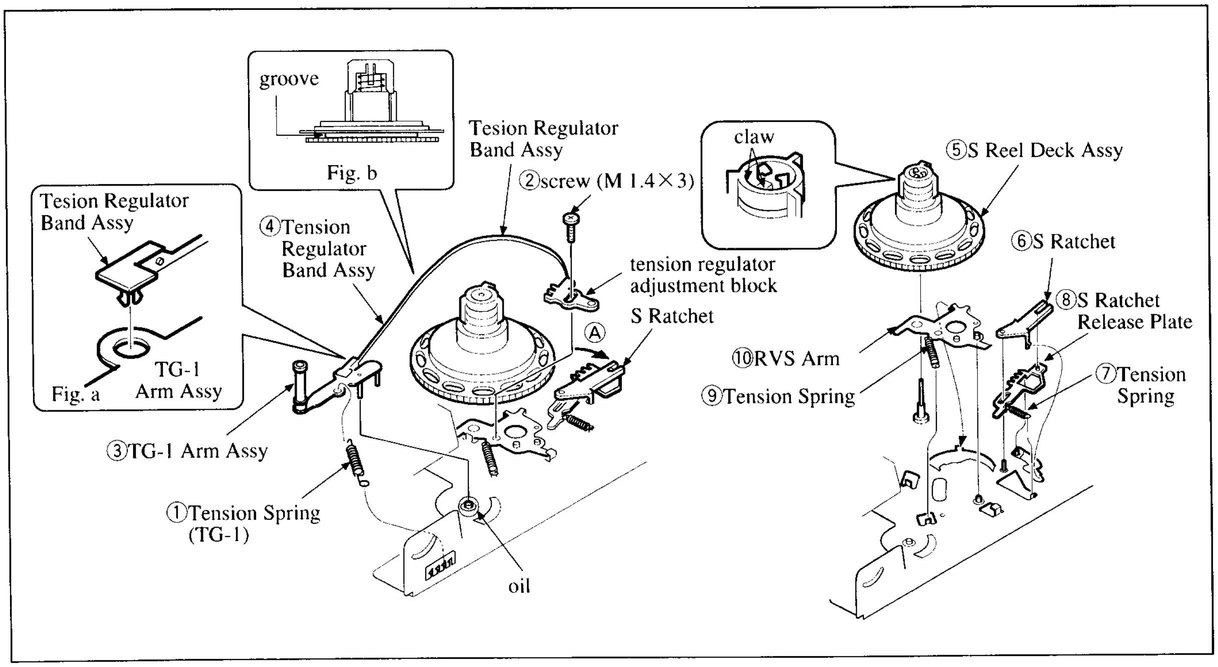

groove
Fig. b
Tesion Regulator Band Assy
②screw (M 1.4×3)
claw
⑤S Reel Deck Assy
Tesion Regulator Band Assy
④Tension Regulator Band Assy
⑥S Ratchet
tension regulator adjustment block
S Ratchet
Ⓐ
⑧S Ratchet Release Plate
TG-1 Arm Assy
Fig. a
⑩RVS Arm
⑦Tension Spring
⑨Tension Spring
③TG-1 Arm Assy
①Tension Spring (TG-1)
oil

Fig. 12

3-8. Pinch Arm Assy, TG4 Arm Block Assy (Refer to Fig. 13)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the Torsion Spring (pinch) ① from an end of Pinch Arm and hook it on the cut-out Ⓐ of the LS Chassis.
5) Remove the screw (M 1.4×2.5) ② and remove the TG4 Retainer ③.
6) Remove the TG4 Arm Block Assy ④ and remove the Torsion Spring ⑤ while paying attention to the Torsion Spring ⑤.
7) Remove the Pinch Arm Assy ⑥. (Caution: The Pinch Press Roller is easy to drop. Pay attention not to drop it.)
8) Remove the Torsion Spring (pinch) ① from the cut-out of the LS Chassis in the order of Ⓐ then Ⓑ.

2. Precautions During Re-Assembly

1) Before attaching these parts, coat the LS chassis pinch arm boss and TG4 arm boss with grease SG-055G (Ref. No. J-13).
2) Do not touch the tape guide of the TG4 Arm Block Assy and roller of the Pinch Arm Assy with bare hand.
3) After coating the Pinch Press Shaft of the Pinch Arm Assy ③ with grease SG-055G (Ref. No. J-13), attach the Pinch Press Roller.

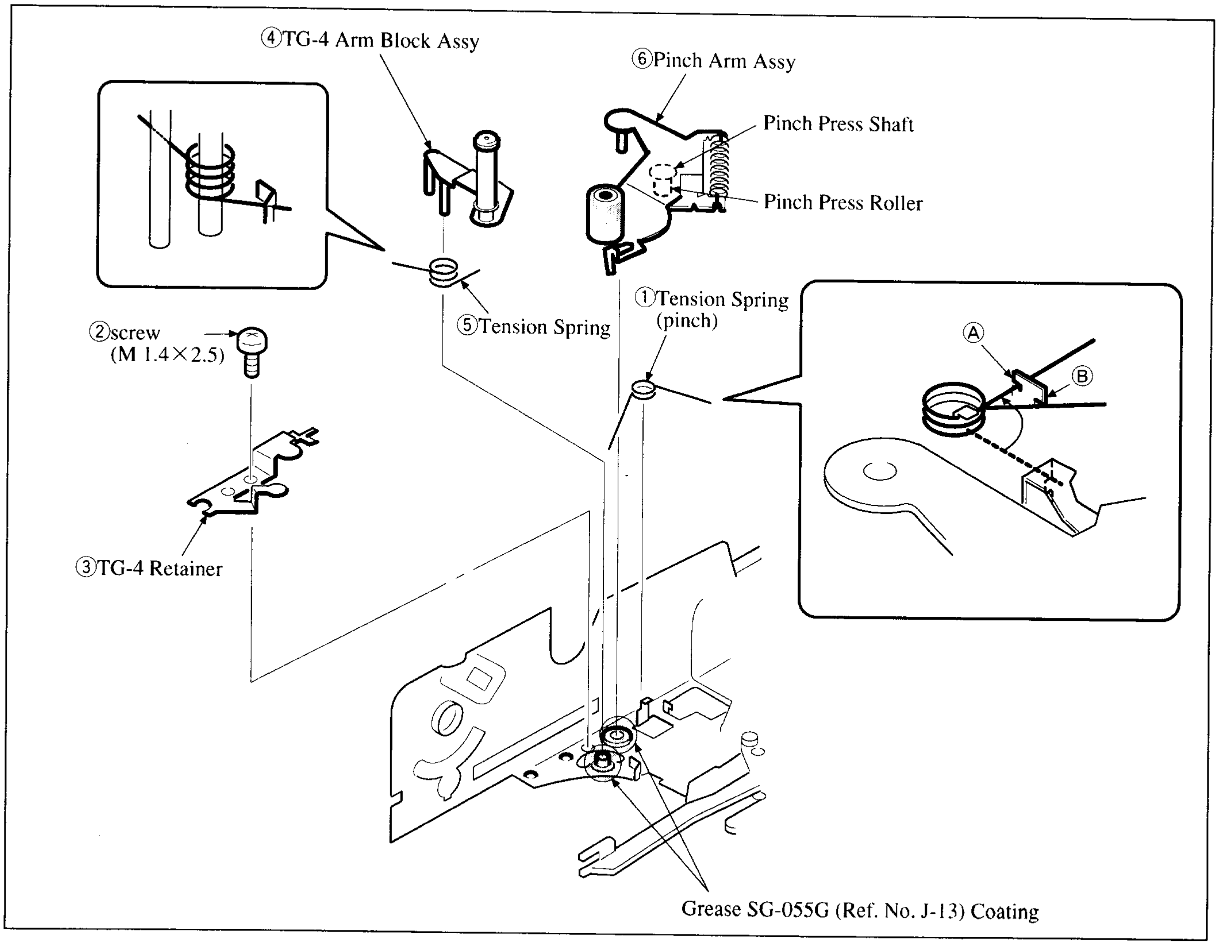

④TG-4 Arm Block Assy
⑥Pinch Arm Assy
Pinch Press Shaft
Pinch Press Roller
⑤Tension Spring
①Tension Spring (pinch)
②screw (M 1.4×2.5)
③TG-4 Retainer
Ⓐ
Ⓑ
Grease SG-055G (Ref. No. J-13) Coating

Fig. 13

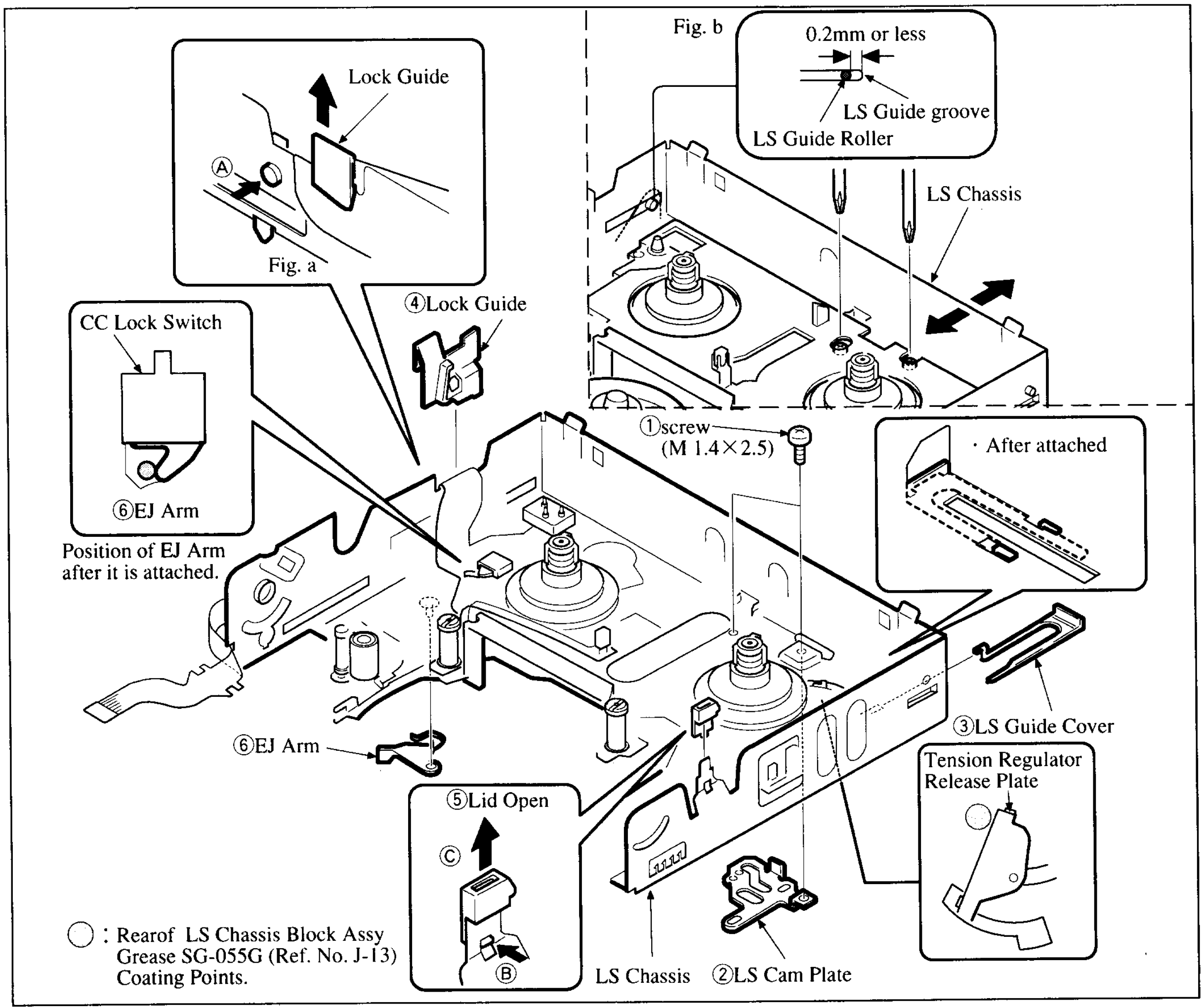
3-9. LS Cam Plate, LS Guide Cover, Lid Opener, EJ Arm, Lock Guide (Refer to Fig. 14)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the two screws (M 1.4×2.5) ① and remove the the LS Cam Plate ②.
   In this state, write a mark on the screw ① and on the LS Chassis indicating the position of the LS Cam Plate which helps during re-assembly.
5) Remove the LS Guide Cover ③.
6) Remove the Lock Guide ④ in the upward direction. (Refer to Fig. a)
7) Remove the Lid Open ⑤ in the direction of the arrow Ⓒ while pushing Ⓑ portion .
8) Remove the EJ Arm ⑥ . (The EJ Arm ⑥ is press-fitted. If the EJ Arm ⑥ is not damaged, it is not necessary to replace.)

2. Precautions During Re-Assembly

1) After the captioned parts are attached, confirm that the respective claws and dowels are engaged completely.
2) If the EJ Arm ⑥ is removed, be sure to replace it with the new replacement EJ Arm.
3) If any mark is not written when removing the LS Cam Plate ②, adjust and attack it as shown in Fig. b.


Lock Guide
Ⓐ
Fig. a
④Lock Guide
CC Lock Switch
⑥EJ Arm
Position of EJ Arm after it is attached.
Fig. b
0.2mm or less
LS Guide groove
LS Guide Roller
LS Chassis
①screw (M 1.4×2.5)
· After attached
③LS Guide Cover
Tension Regulator Release Plate
⑥EJ Arm
⑤Lid Open
Ⓒ
Ⓑ
LS Chassis
②LS Cam Plate

○ : Rearof LS Chassis Block Assy Grease SG-055G (Ref. No. J-13) Coating Points.

Fig. 14

3-10. Guide Base (S) and (T) Block Assemblies, Guide Rail (Refer to Fig. 15)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) While pushing the GB Stoppers (S) and (T) in the direction of arrow Ⓐ, press the guide arm in the direction of the arrow Ⓑ, and turn the Guide Base (S) and (T) Block Assemblies : ① and ② in the direction of the arrow Ⓒ respectively, and remove them.
5) Remove the two screws (M 1.4×2.5) ③ and remove the the Guide Rail Assy ④.
6) Remove the Stopper (S) and (T) : ⑤ and ⑥, then remove the GB Stopper S and T: ⑦ and ⑧.

2. Precautions During Re-Assembly

1) Pay attention not to deform the Guide Rail.
2) Do not touch the tape guide of the Guide Base (S) and (T) Block Assemblies with bare hand.
3) Pay attention not to deform the Stoppers (S) and (T).
4) When attaching the Guide Base (S) and (T) Blocks to the Guide Rail, move back the Guide Bases until the GB Stoppers (S) and (T) are locked. ("Click" sounds.)
5) After the captioned parts are attached, perform section "4. TAPE PATH ADJUSTMENT".

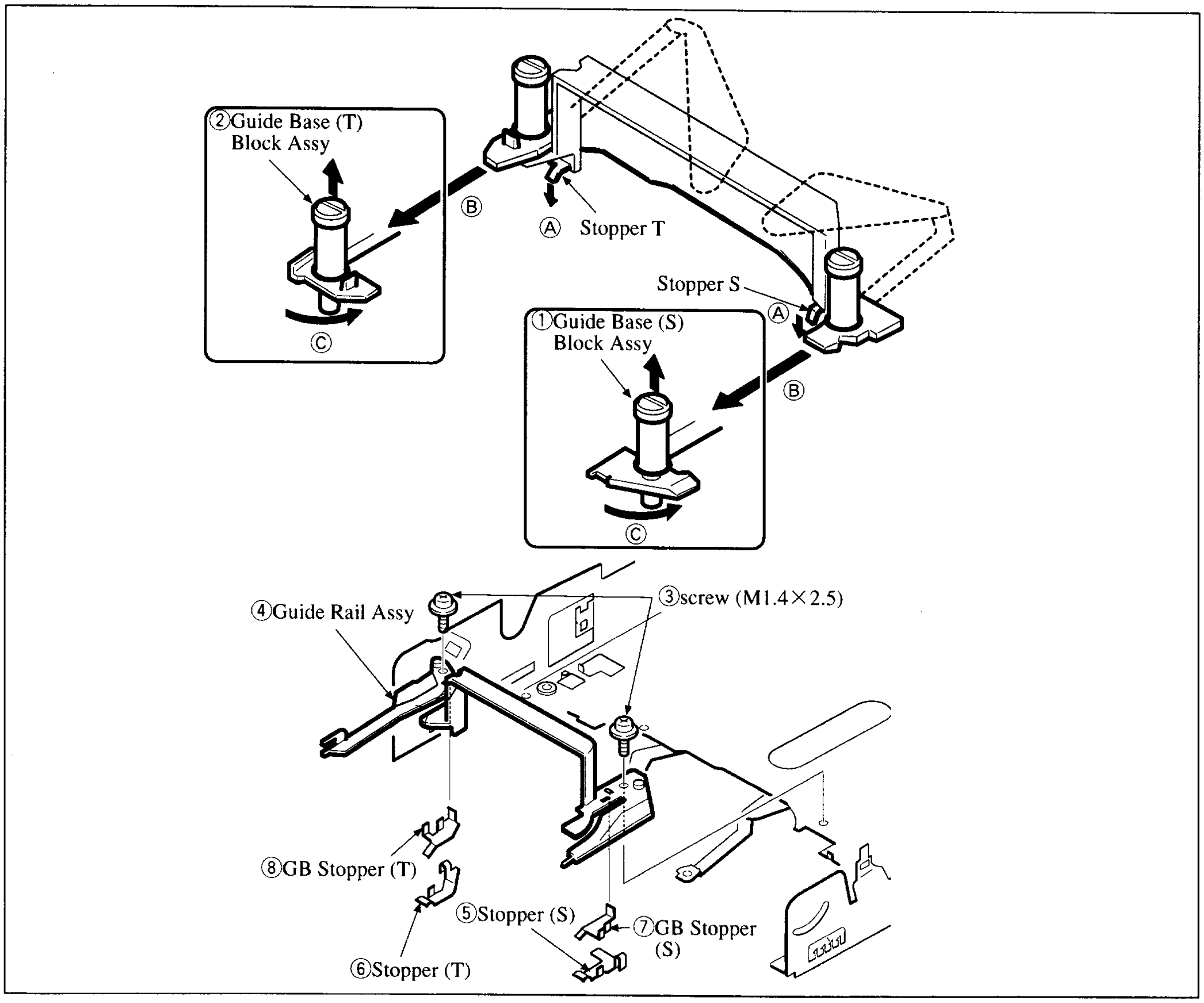

②Guide Base (T)
Block Assy
Ⓑ
Ⓐ Stopper T
Ⓒ
Stopper S
Ⓐ
①Guide Base (S)
Block Assy
Ⓑ
Ⓒ
④Guide Rail Assy
③screw (M1.4×2.5)
⑧GB Stopper (T)
⑤Stopper (S)
⑦GB Stopper
(S)
⑥Stopper (T)

Fig. 15

• PARTS CONSTITUTING THE MECHANISM CHASSIS

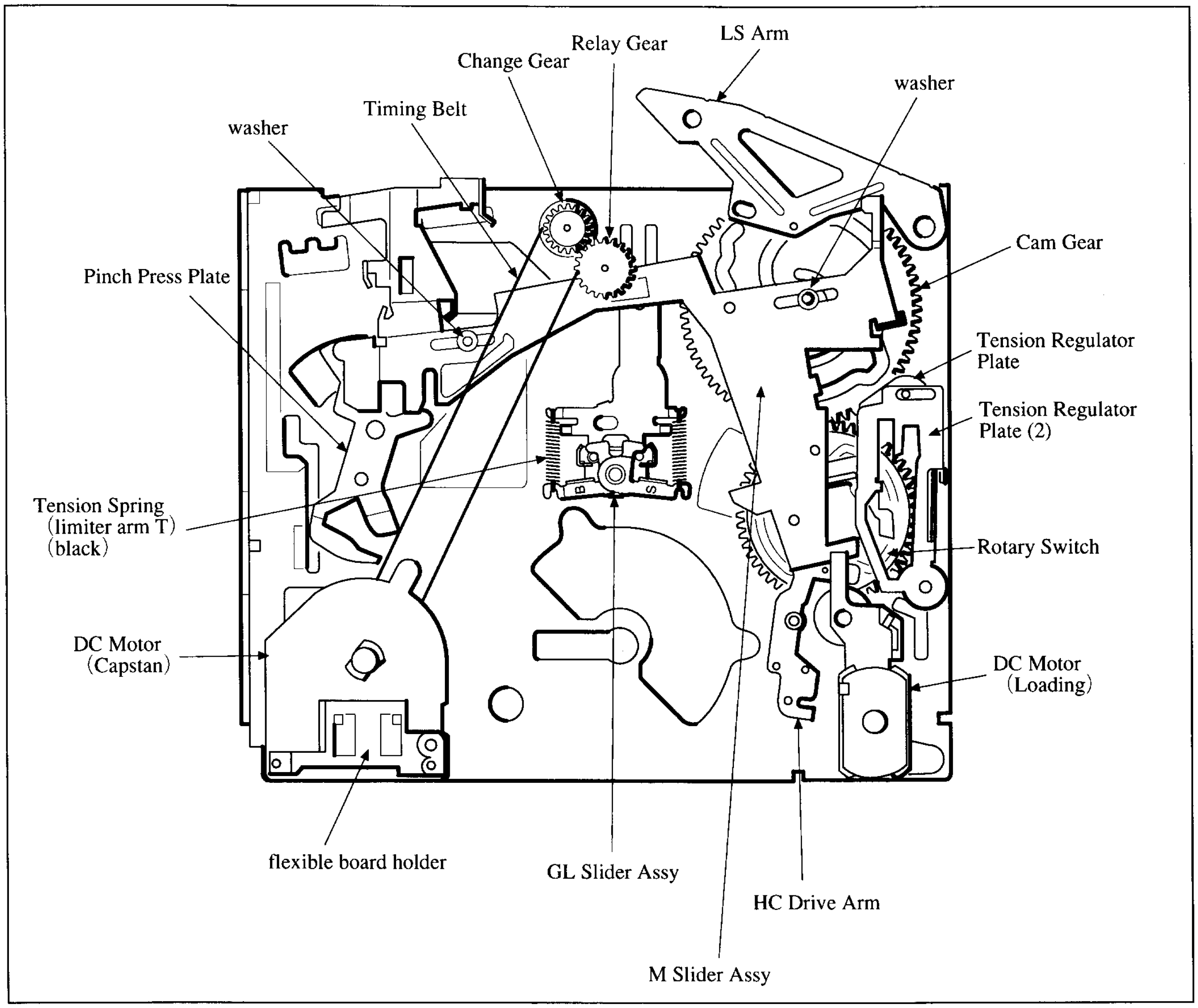

Relay Gear
LS Arm
Change Gear
washer
Timing Belt
washer
Cam Gear
Pinch Press Plate
Tension Regulator Plate
Tension Regulator Plate (2)
Tension Spring (limiter arm T) (black)
Rotary Switch
DC Motor (Capstan)
DC Motor (Loading)
flexible board holder
GL Slider Assy
HC Drive Arm
M Slider Assy

Fig.16

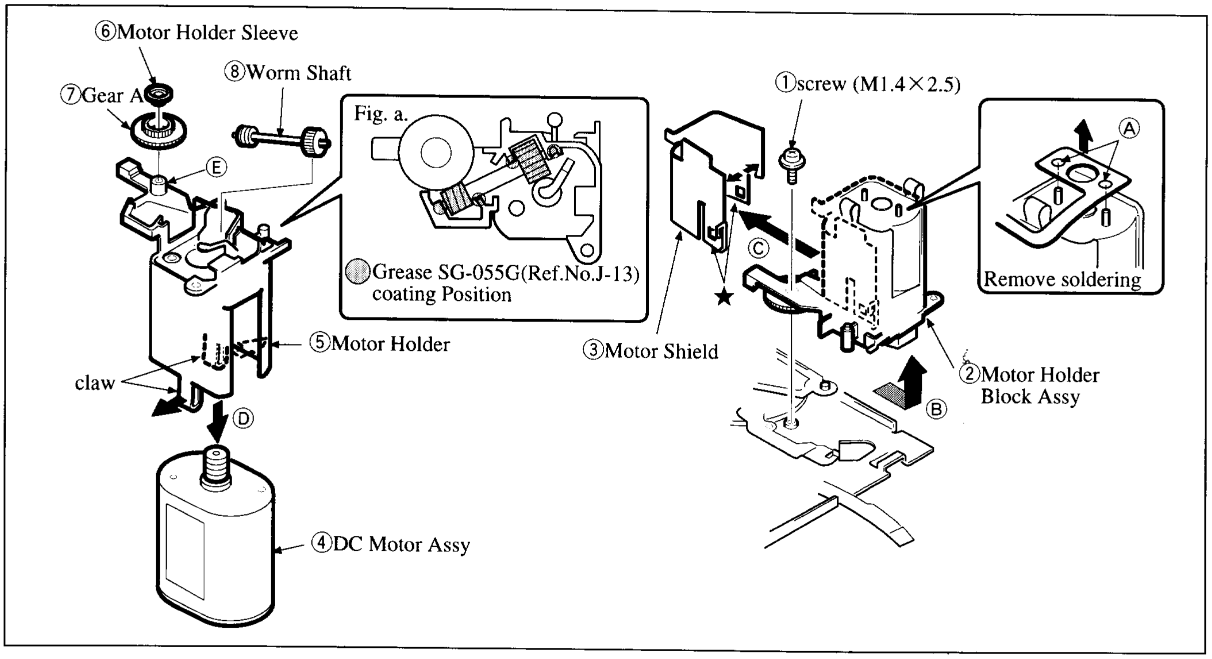
3-11. DC Motor Assy (Loading) (Refer to Fig. 17)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove soldering from the Ⓐ portion.
8) Remove the screw (M 1.4×2.5) ① and remove the Motor Holder Block Assy ② from the mechanism chassis along with the claw beneath the Motor Holder Block Assy as shown by the arrow Ⓑ.
9) Remove the Motor Shield ③ in the direction of the arrow Ⓒ (by opening the two ★ star marked points).
10) Release the claw on top of the Motor Holder ⑤ and remove the DC Motor Assy ④ in the direction of the arrow Ⓓ.
11) Remove the Motor Holder Sleeve ⑥, Gear A⑦ and Worm Shaft ⑧ in this order.

2. Precautions During Re-Assembly

1) Before attaching the Gear A ⑥, coat the Retainer Shaft Ⓔ with grease SG-055G (Ref. No. J-13).
2) After assembling the Motor Holder Block Assy, coat the six locations shown by Fig. a with grease SG-055G (Ref. No. J-13).
3) The HC Drive Arm is easy to drop. Confirm that it is attacked referring to Fig. 19.



⑥Motor Holder Sleeve
⑦Gear A
⑧Worm Shaft
Ⓔ
Fig. a.
●Grease SG-055G(Ref.No.J-13) coating Position
①screw (M1.4×2.5)
Ⓐ
Remove soldering
Ⓒ
★
⑤Motor Holder
③Motor Shield
②Motor Holder Block Assy
Ⓑ
claw
Ⓓ
④DC Motor Assy

Fig. 17

3-12. Tension Regulator Plate 2, Relay Gear, M Slider Assy (Refer to Fig. 18)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC motor referring to section 3-11.
8) Remove the Tension Regulator Plate 2 ①.
9) Remove the Relay Gear ②.
10) Remove the two washers ③. Remove the M Slider Assy ④. At the point, confirm that the LS Roller ⑤ is not dropped.

2. Precautions During Re-Assembly

1) Before attaching the M Slider Assy ④, coat the LS Roller Shaft Ⓐ on the back of the M Slider Assy, the Pinch Press Plate Shaft Ⓑ and the mechanism chassis M Slider Axis Ⓒ with grease SG-055G (Ref. No. J-13). (Refer to Fig. b)
2) While confirming the phase-determining holes, attach the M Slider Assy ④ while paying attention to the claw.
3) Attach the Tension Regulator Plate 2 ① inside the Tension Regulator Plate. (Refer to the asterisk ＊Marked portion of Fig. a)
4) Before attaching the Relay Gear ②, coat the mechanism chassis Relay Gear Axis Ⓓ with grease SG-055G (Ref. No. J-13).

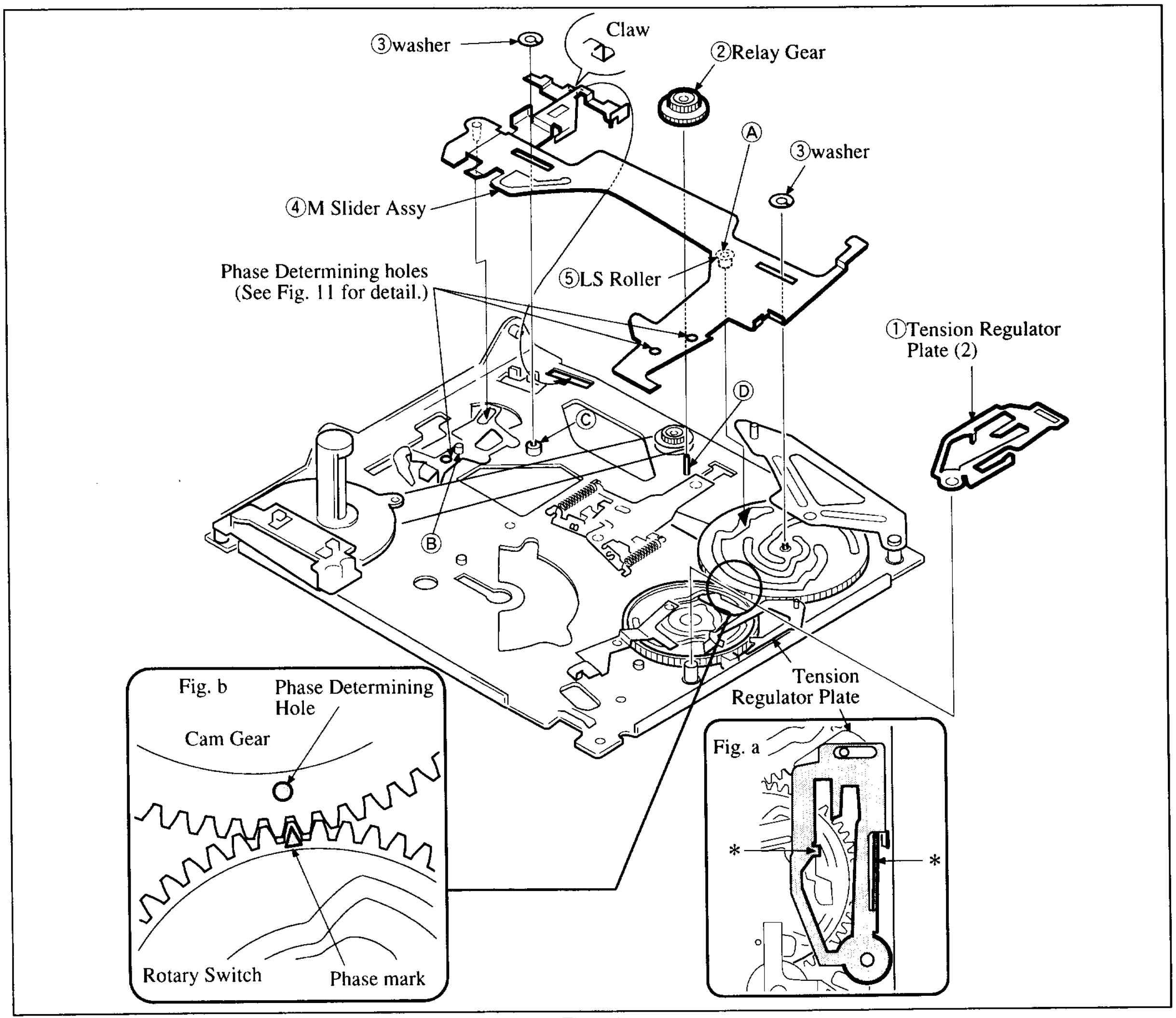

③washer
Claw
②Relay Gear
Ⓐ
③washer
④M Slider Assy
Phase Determining holes
(See Fig. 11 for detail.)
⑤LS Roller
①Tension Regulator Plate (2)
Ⓓ
Ⓒ
Ⓑ
Tension Regulator Plate
Fig. b
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
Fig. a
＊
＊

Fig. 18

3-13. LS Arm, HC Drive Arm, Pinch Press Plate, Tension Regulator Plate (Refer to Fig. 19)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm ①. At this point, confirm that the LS Roller ② is not dropped.
10) Remove the HC Drive Arm ③, Pinch Press Plate ④ and Tension Regulator Plate ⑤.

2. Precautions During Re-Assembly

1) Before attaching the captioned parts, confirm that phases of the Cam Gear and the Rotary Switch agree. (See Fig. a.)
2) Insert the dowel of the Tension Regulator Plate ⑤ into the groove outside the rotary switch.
3) Before attaching the Pinch Press Plate ④, check for grease on the mechanism chassis Pinch Press Plate Shaft Ⓐ. If grease cannot be found, coat it with grease SG-055G (Ref. No. J-13). After attaching the Pinch Press Plate ④, align its phase hole until it agrees with the phase-determining hole on the mechanism chassis.
4) Insert the dowel of the HC Drive Arm ③ into the groove inside the rotary switch.
5) Before attaching the LS Arm ①, coat the LS roller shaft of the LS Arm ① with grease SG-055G (Ref. No. J-13).

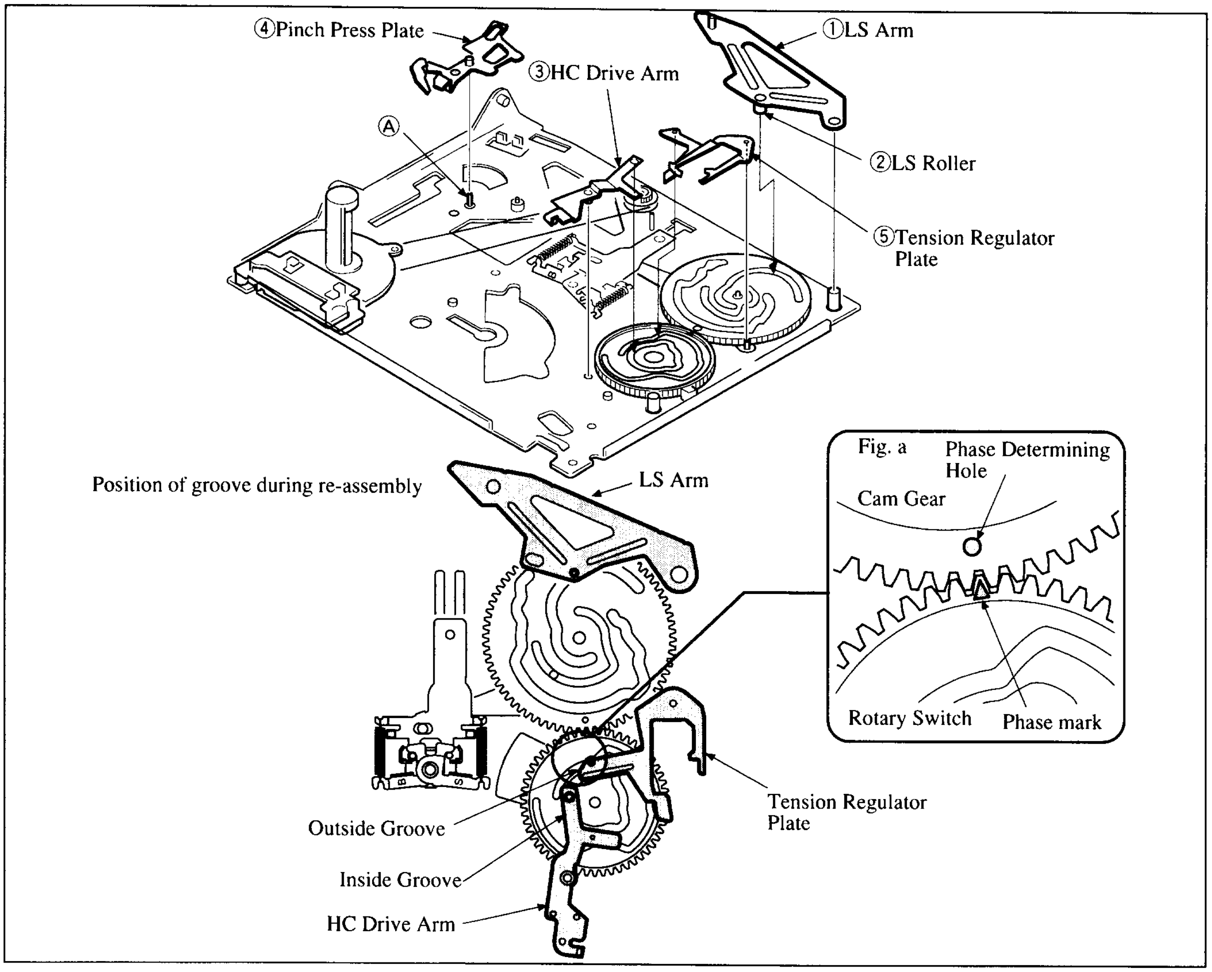

④Pinch Press Plate
③HC Drive Arm
①LS Arm
Ⓐ
②LS Roller
⑤Tension Regulator Plate
Position of groove during re-assembly
LS Arm
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
Tension Regulator Plate
Outside Groove
Inside Groove
HC Drive Arm

Fig. 19

3-14. Cam Gear (Refer to Fig. 20)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear ①.

2. Precautions During Re-Assembly

1) Before attaching the Cam Gear ①, align the phase mark on the rotary switch until it agrees with the phase-determining hole Ⓐ on the mechanism chassis, and align the GL Arm's phase mark Ⓑ until it agrees with the phase-determining hole Ⓐ on the mechanism chassis. Coat the mechanism's chassis Gear Axis Ⓐ with grease SG-055G (Ref. No. J-13).
2) Attach the Cam Gear ① so that its phase hole agrees with the phase mark on the rotary switch. (Refer to Fig. a)
3) After the Cam Gear ① is attached, coat the GL Arm Axis Block of the cam gear with grease SG-055G (Ref. No. J-13).

Reference : The phase marks of the Cam Gear and Rotary Switch can also be checked from the rear side of mechanism chassis. It means that the phase can be confirmed after mechanism deck is fully re-assembled.

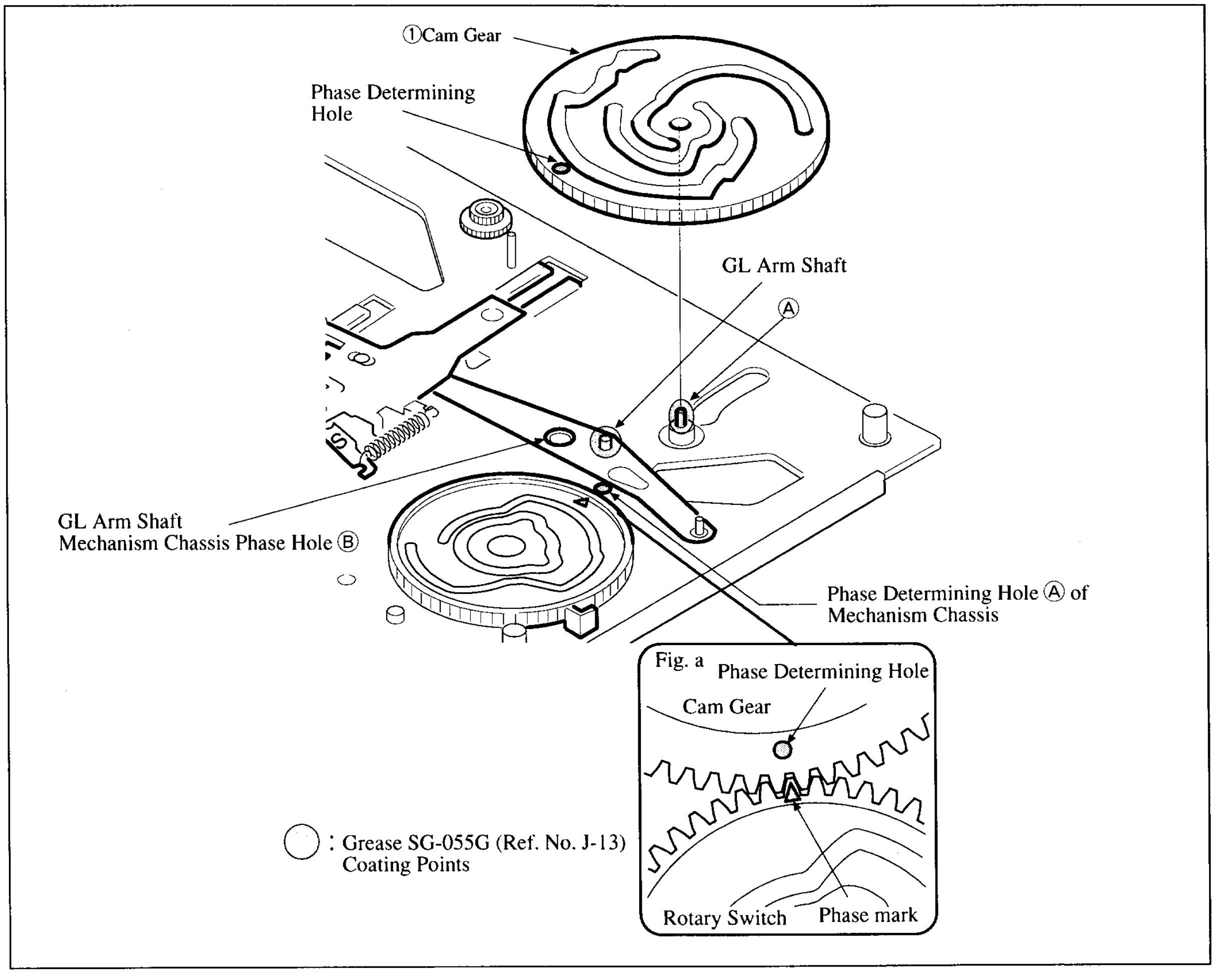

①Cam Gear
Phase Determining Hole
GL Arm Shaft
Ⓐ
GL Arm Shaft
Mechanism Chassis Phase Hole Ⓑ
Phase Determining Hole Ⓐ of Mechanism Chassis
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
○ : Grease SG-055G (Ref. No. J-13) Coating Points

Fig. 20

3-15. GL Slider Assy, GL Arm (Refer to Fig. 21)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove the GL Slider Assy ① by sliding it in the direction of the arrow Ⓐ.
12) Remove the GL Arm ②.

2. Precautions During Re-Assembly

1) The Tension Spring T③ is colored black and the Tension Spring S④ is colored silver.
2) Coat the position shown in Fig. a of the GL Slider Assy ① with grease SG-055G (Ref. No. J-13).
3) Coat the four points Ⓑ where GL slider is attached on the mechanism chassis with grease SG-055G (Ref. No. J-13).
4) After attaching the GL Arm ② and the GL Slider Assy, align the GL arm phase hole until it agrees with the phase-determining hole on the mechanism chassis.

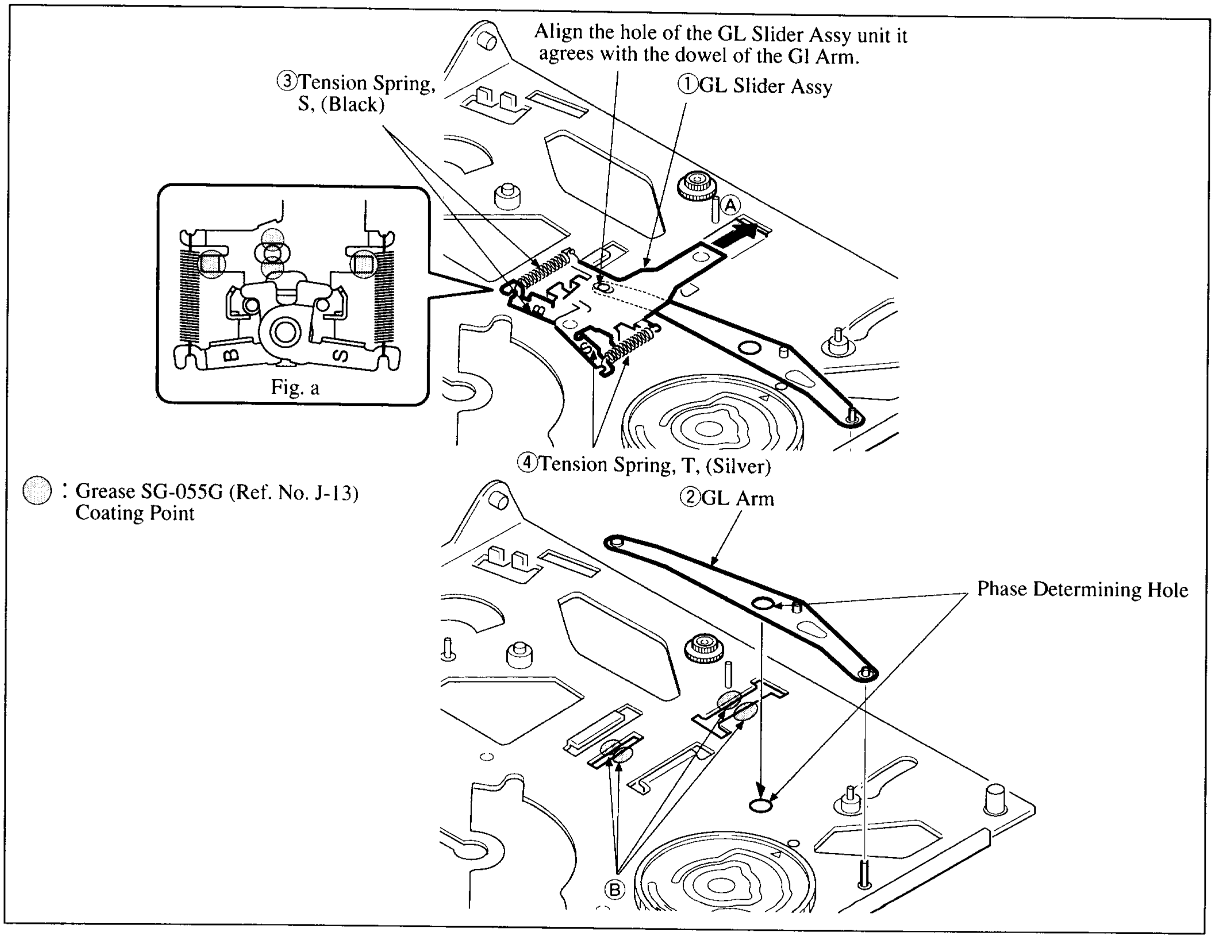

Align the hole of the GL Slider Assy unit it agrees with the dowel of the Gl Arm.
③Tension Spring, S, (Black)
①GL Slider Assy
Ⓐ
B
S
Fig. a
④Tension Spring, T, (Silver)
②GL Arm
Phase Determining Hole
Ⓑ
○ : Grease SG-055G (Ref. No. J-13) Coating Point

Fig. 21

3-16. Rotary Switch (Refer to Fig. 22)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm, Tension Regulator Plate, HC Drive Arm and Pinch Press Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove soldering the portion Ⓐ on the rear of the Rotary Switch. (Pay attention at this moment that the GL Slider and GL Arm do not drop.)
12) While lifting up the portion Ⓑ about 1 mm (pay attention not to break it), hold the portion Ⓒ and turn it in the direction of the arrow Ⓓ to remove the Rotary Switch.

2. Precautions During Re-Assembly

1) Before attaching the Rotary Switch by soldering on the FP-220 board, insert the portion Ⓑ dowel into the hole on the mechanism chassis. Confirm that the three claws are engaged with the mechanism chassis.

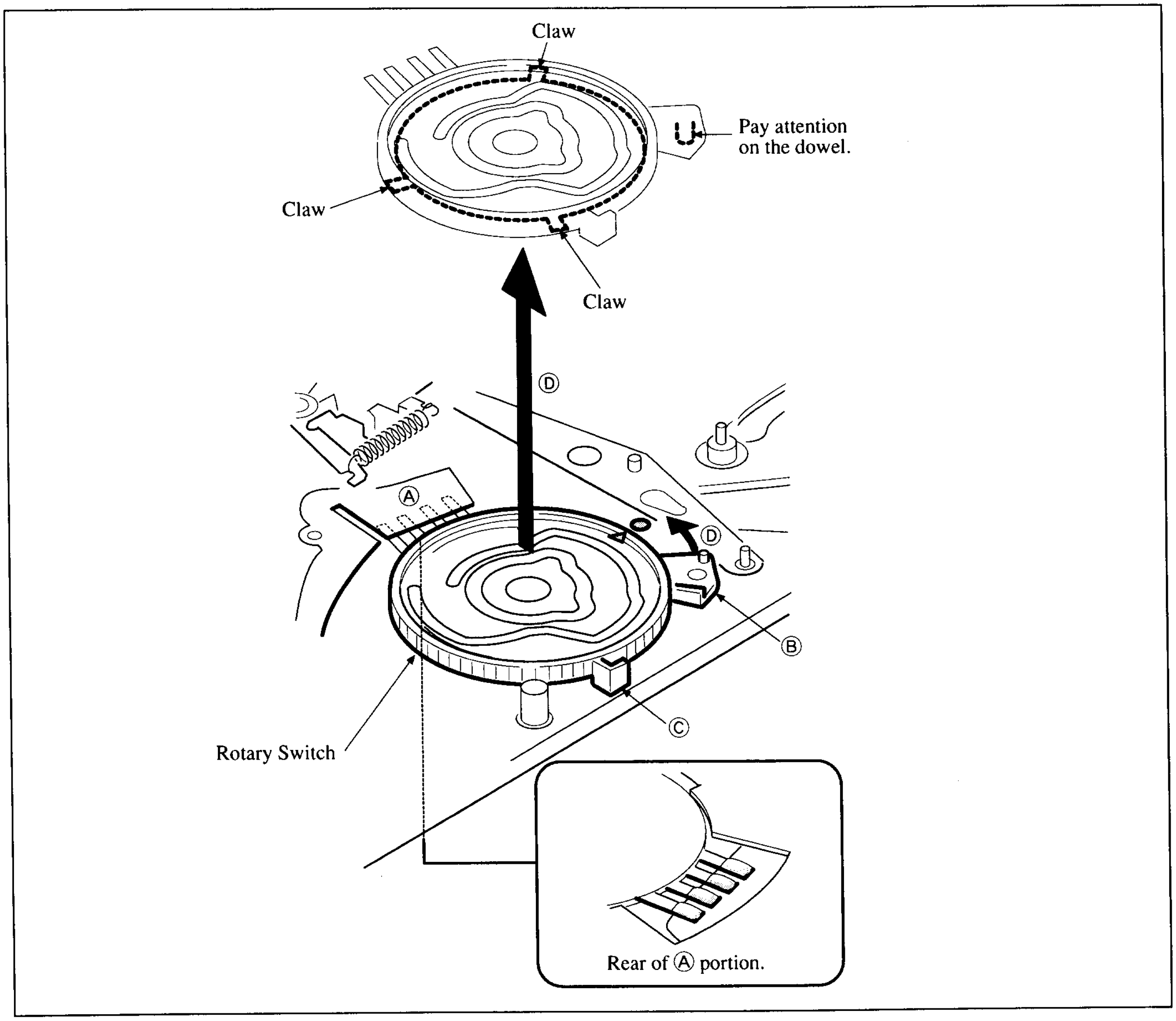


Fig. 22

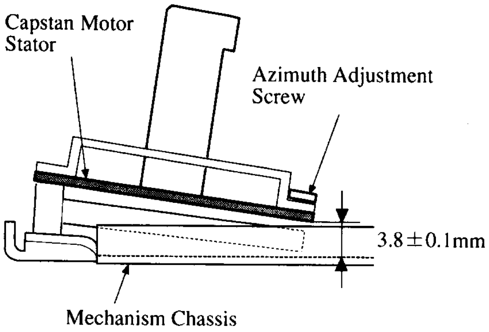
3-17. Capstan Motor (Refer to Fig. 23)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the Pinch Press Plate referring to section 3-13.
10) Remove the screw (M 1.4×6.7) ① and remove the Flexible Board Holder ②.
11) Remove the two screws (M 1.4×6.7) ③ and remove the Capstan Motor ④, Timing Belt ⑤ and Capstan Spacer ⑥.
12) Remove the washer ⑦ and remove the Changer Gear ⑧.

2. Precautions During Re-Assembly

1) Confirm that the timing belt is not twisted.
2) Do not touch the capstan with bare hand.
3) Lubricate the mechanism chassis's Change Gear shaft Ⓐ.
4) After attaching the Capstan Motor, perform the capstan azimuth adjustment.


Capstan Motor Stator
Azimuth Adjustment Screw
3.8±0.1mm
Mechanism Chassis

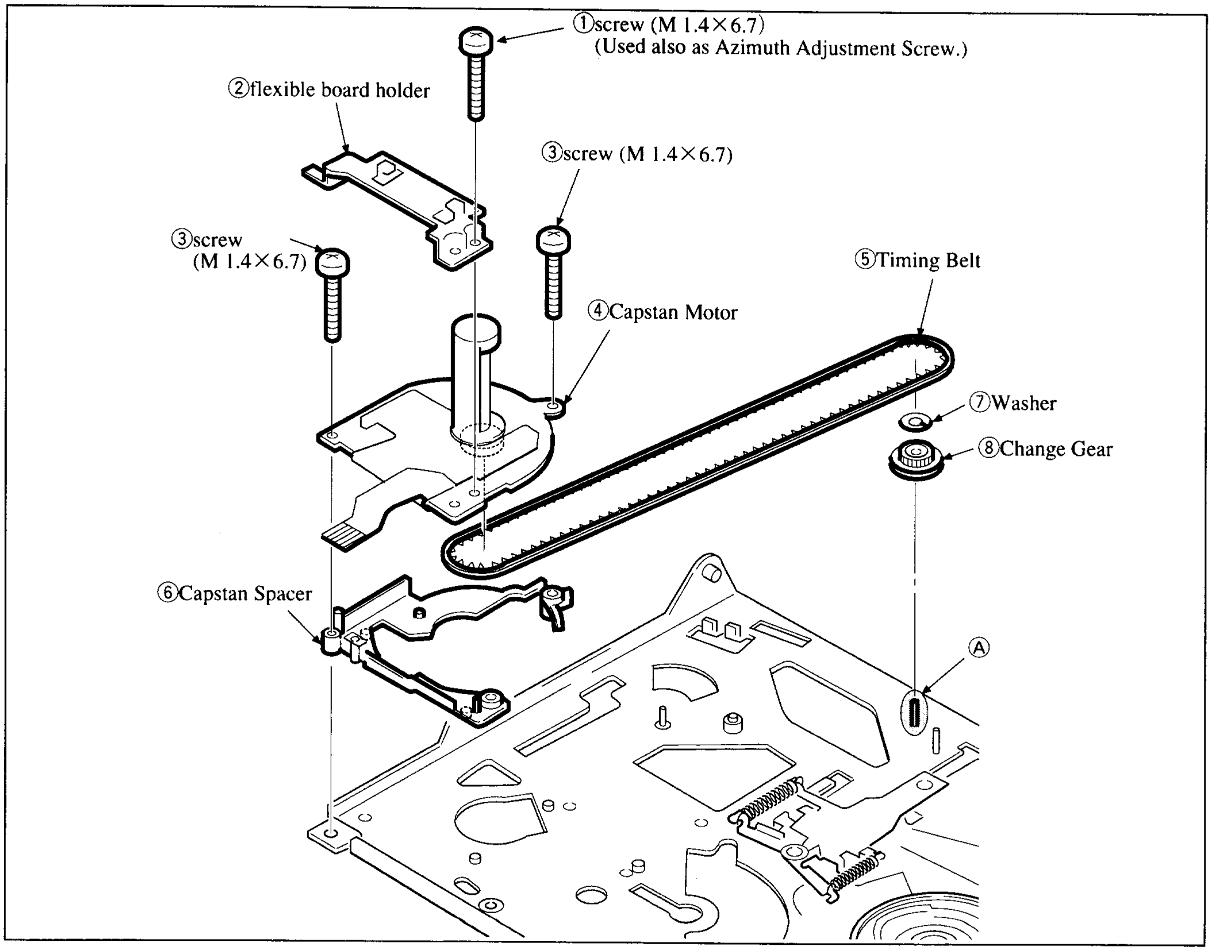

①screw (M 1.4×6.7)
(Used also as Azimuth Adjustment Screw.)
②flexible board holder
③screw (M 1.4×6.7)
③screw
(M 1.4×6.7)
⑤Timing Belt
④Capstan Motor
⑦Washer
⑧Change Gear
⑥Capstan Spacer
Ⓐ

Fig. 23

3-18. Tension Regulator Position Adjustment (Refer to Fig.24)

1. Adjustment Procedure

1) Insert a cassette Tape and run the Tape in PB mode.
2) While tape is running, confirm that the distance between the LS Chassis and TG-1 Guide's top flange is 8.3mm.
3) If not, proceed to step 4).
4) Loosen the screw ① (M 1.4×3).
5) If the TG-1 Guide is located inside the specified position, move position of the Tension Regulator Band Assy using the FWD B.T. Adjustment tool screwdriver (Ref. No. J-9) as shown in the direction of the arrow Ⓐ. If it is located outside, move it in the direction of the arrow Ⓑ.
6) Tighten the screw ① (M 1.4×3).

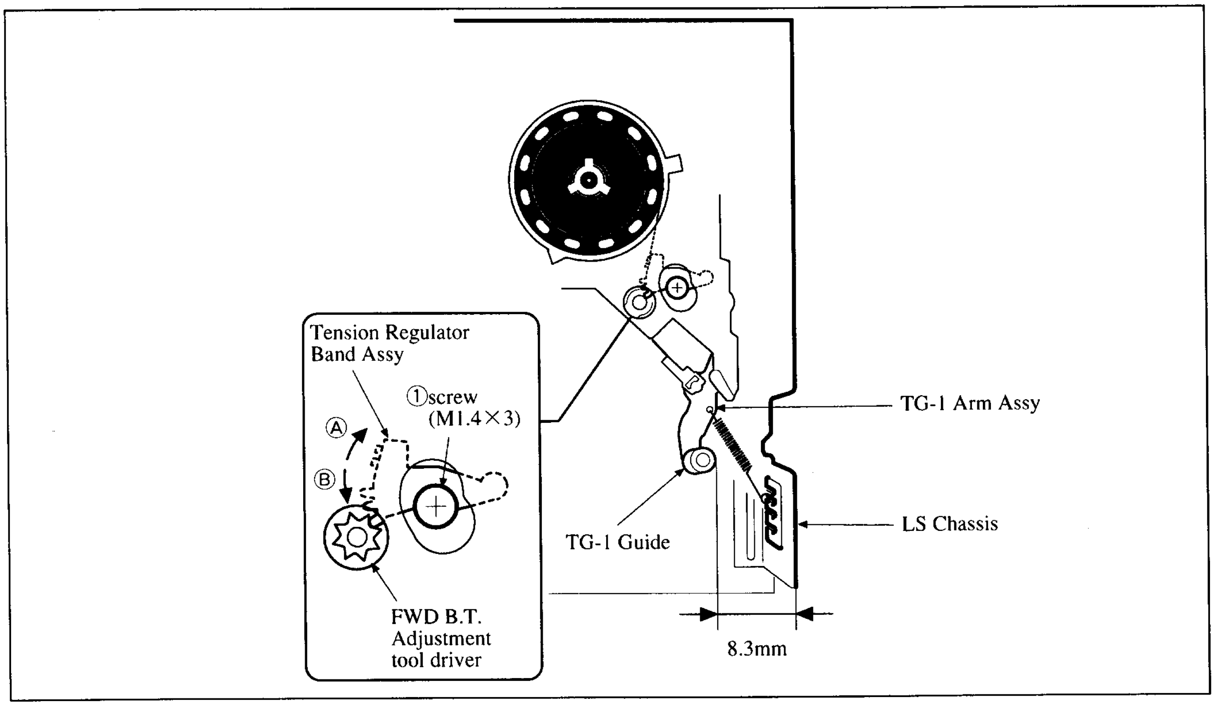

Tension Regulator Band Assy
①screw (M1.4×3)
Ⓐ
Ⓑ
FWD B.T. Adjustment tool driver
TG-1 Guide
TG-1 Arm Assy
LS Chassis
8.3mm

Fig.24

3-19. FWD Tape Hold-Back Tension Adjustment (Refer to Fig. 25)

1. Adjustment Procedure

1) Insert the torque measurement cassette to the machine.
2) Put the machine in the FWD mode. Confirm that the reading on the S side is in the range from 8.0 to 10.5 g•cm. If the reading is outside the specification range, make the following adjustments.
3) If the reading is higher than the specification, change the TG-1 Tension Spring to the side Ⓐ.
4) If the reading is lower than the specification, change the TG-1 Tension Spring to the side Ⓑ.

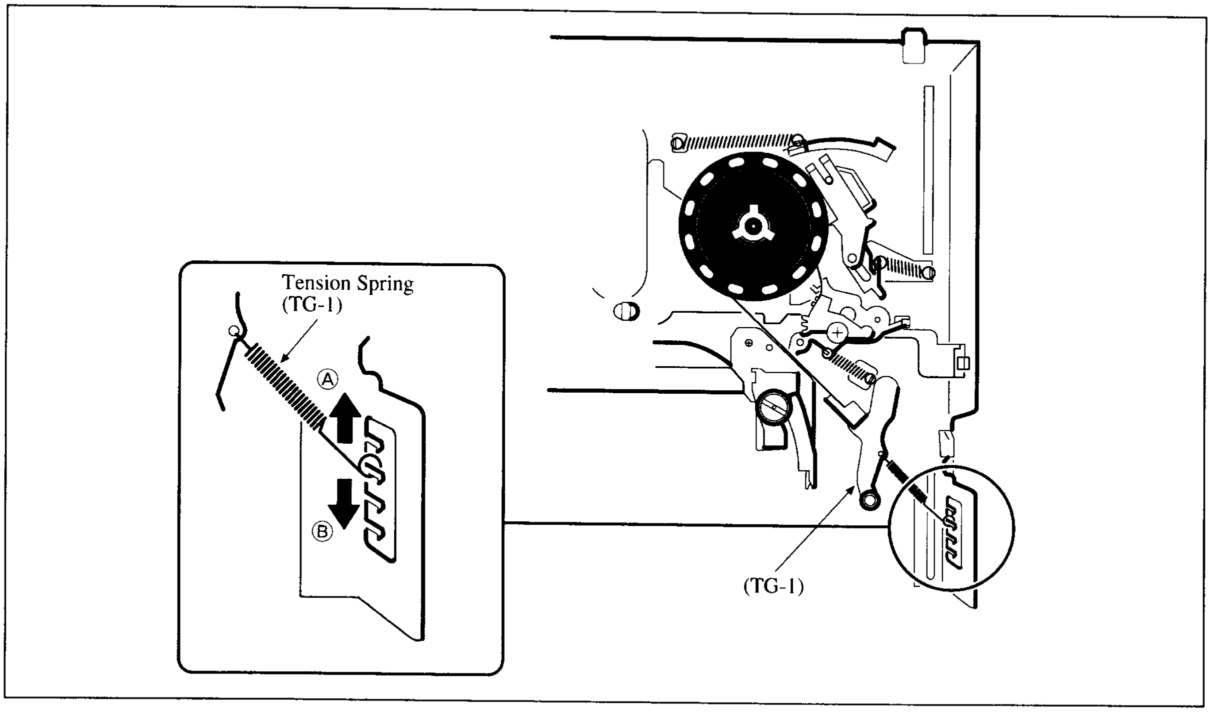


Fig. 25

4. TAPE PATH ADJUSTMENT

Purpose: Adjusts the head linearity.

Adjustment Error: Noise appears on top and bottom of display when playing back the tape recorded by other machines.

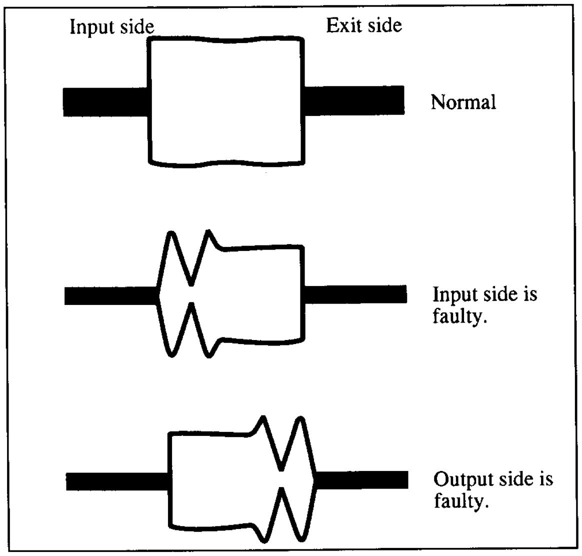


Fig. 26

4-1. Preparations for Adjustments

1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
2) Connect the adjustment remote commander to the REMOTE terminal (JACK block).
3) Establish the PATH mode using the adjustment remote commander (Track Shift mode)* to cancel auto tracking.
4) Connect an oscilloscope.
   CH1: Test connector PB RF terminal
   External trigger: Test connector PB SWP terminal
5) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
6) Check to see that RF waveform is flat at input and exit sides on oscilloscope.
   If it not flat, perform the following section 4-2 until it is flat.
7) After completing the adjustment, release the PATH mode (Track Shift mode).*.

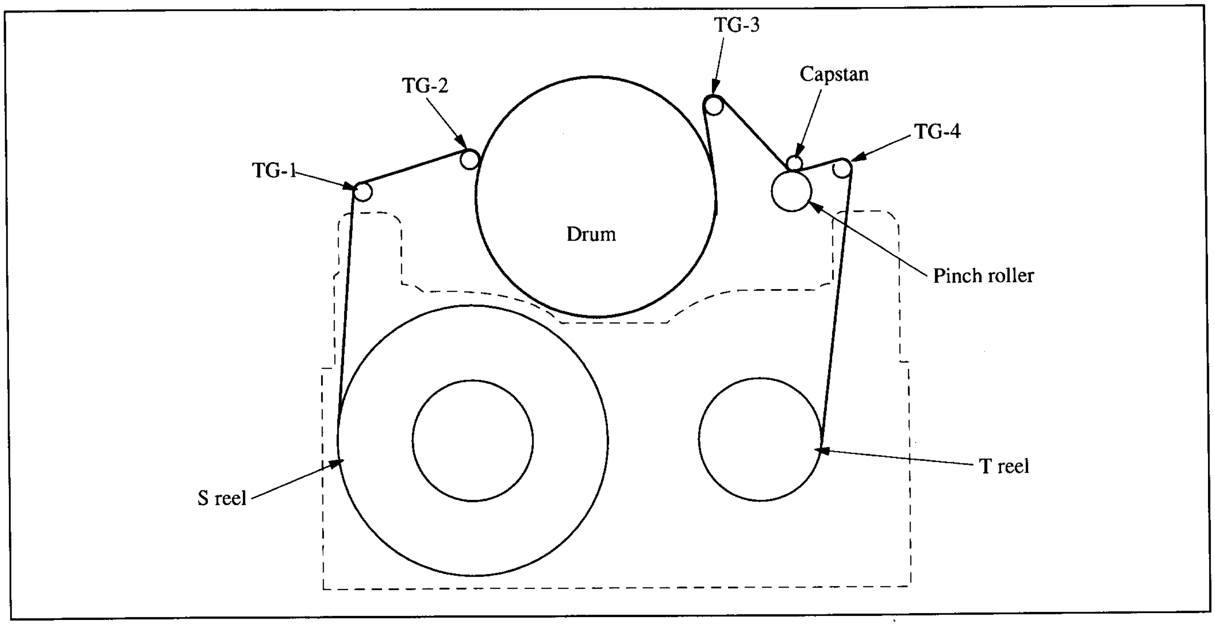


Fig. 27

* How to enter and exit the Track Shift mode. (In the case of CCD-TR420E/TR440E)

Entering the Track Shift mode

1. Select page : 6, address : 00 set data : 01 and press the PAUSE button.
2. Select page : 7, address : 01 set data : 03 and press the PAUSE button.

Exitting the Track Shift mode

1. Select page : 7, address : 01 set data : 00 and press the PAUSE button.
2. Select page : 6, address : 00 set data : 00 and press the PAUSE button.

4-2. Tracking Adjustment (Refer to Fig. 28.)

1) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
2) Adjust the tape guide No. 2 until the input side waveform becomes flat.
3) Adjust the tape guide No. 3 until the input side waveform becomes flat.

☆ Zenith adjustment screws for the TG-2 and TG-3 do not need to be adjusted.

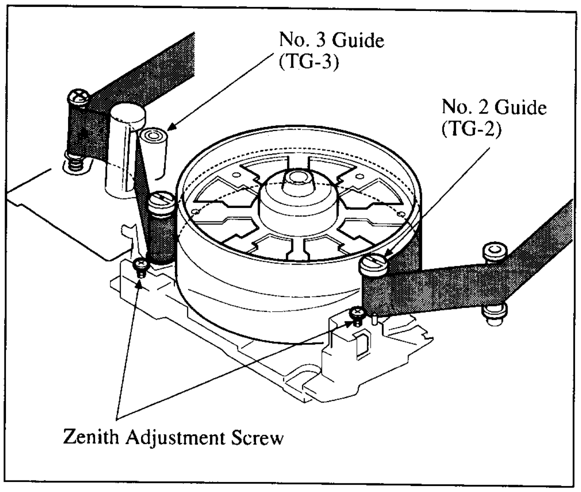


Fig. 28

4-3. No. 4 Guide (TG-4) Adjustment (Refer to Fig. 29.)

1) Playback a tape in REV mode.
2) Confirm that tape slack does not occur in between the guide No. 3 (TG-3) ① and Capstan ②. If tape slack is found, turn the height adjustment screw ④ of the Guide No. 4 (TG-4) ③ until tape slack is removed.
3) Playback a tape in FWD mode. Confirm that tape slack does not occur in between the guide No. 4 (TG-4) ③ and capstan ②. (Specification = 0.5 mm or less) If tape slack of more than 0.5 mm is found, turn the TG-4 nut ④ until the slack is 0.5 mm or less. Playback tape in REV mode and confirm that tape slack in between the guide No. 3 (TG-3) ① and capstan ② is 0.3 mm or less, the adjustment is complete.

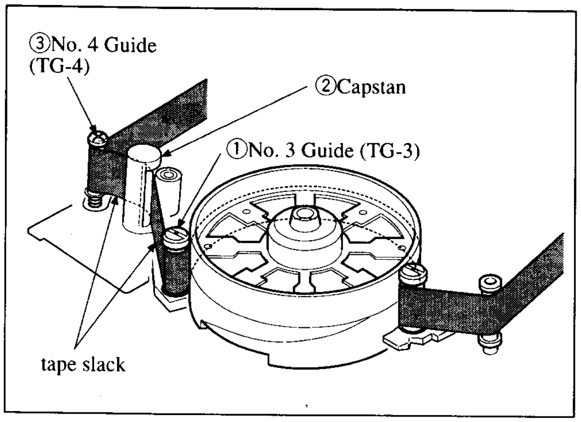


Fig. 29

4-4. CUE, REV Waveforms Check (Refer to Fig. 30.)

1) Playback the tracking alignment tape in REV mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform sections "4-2. Tracking Adjustment" and section "4-3. No. 4 Guide Adjustment".
2) Playback the tracking alignment tape in CUE mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform section "4-2. Tracking Adjustment".

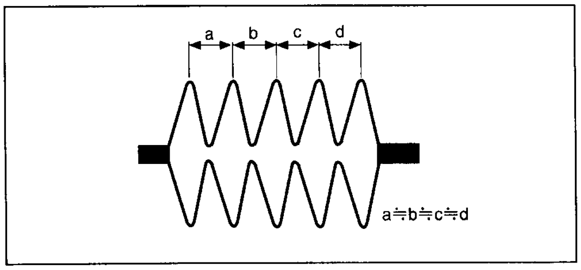


Fig. 30

4-5. Checks After Adjustments

4-5-1. Tracking Check

1) Confirm that amplitude of the RF waveform decreases to about 3/4 when the machine enters the PATH mode. (Refer to Fig. 31)
2) Confirm that the minimum amplitude (EMIN) of the RF waveform is 65 % or more of the maximum amplitude (EMAX). (Refer to Fig. 32)
3) Confirm that the RF waveform does not have too much fluctuation. (Refer to Fig. 33)

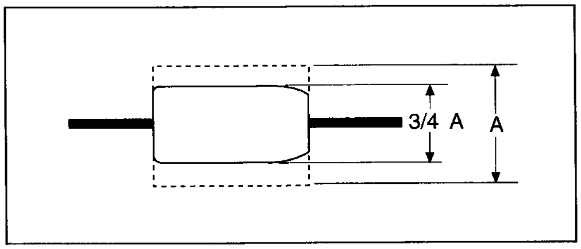


Fig. 31

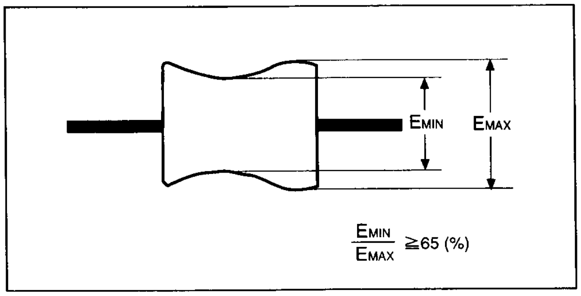


Fig. 32

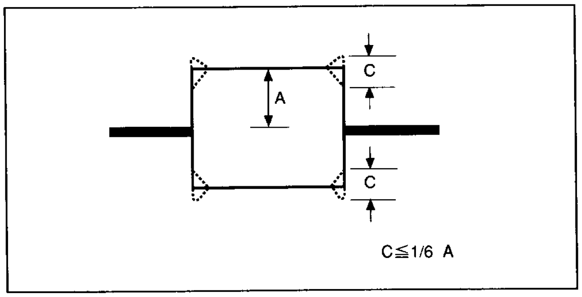


Fig. 33

4-5-2. Waveform Build-up Check (Refer to Fig. 34.)

1) Playback the tracking alignment tape.
2) Turn OFF the Track Shift mode.
3) Eject the tape once, insert and load the tape.
4) Start playing back the tape and confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
5) Playback the tape in CUE/REV and FF/REW modes respectively. Confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
6) Repeat the check items 3) to 5) again.

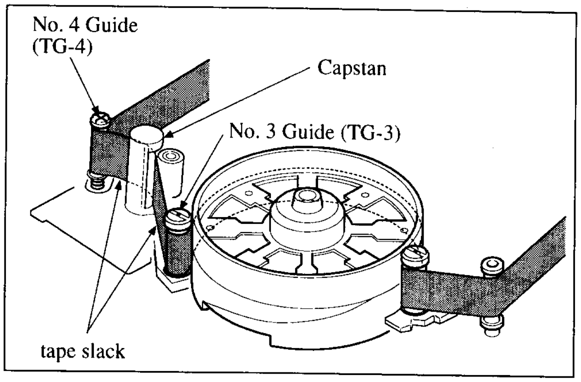


Fig. 34

4-5-3. Tape Pass Check (Refer to Fig. 35.)

1) Insert a thin video tape such as P6-120MP (NTSC) or P5-120MP (PAL). Playback the thin tape. Confirm that there is no clearance or curl of 0.3 mm or more at the following points: Upper flange of guide No. 2, upper flange of guide No. 3, upper and lower flanges of guide No. 4.
2) Confirm that there is no clearance or curl of 0.3 mm or more at each tape guide when the FF button is pressed from the playback mode to enter the CUE mode, and when the REW button is pressed from the playback mode to enter the REV mode.

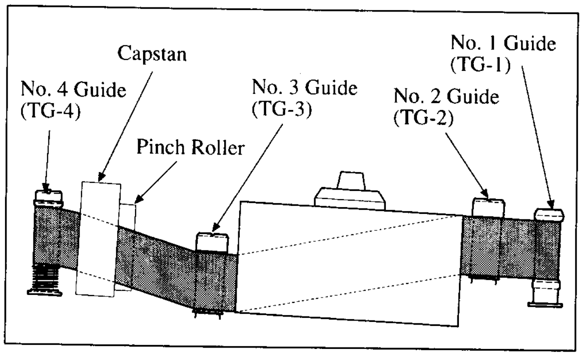
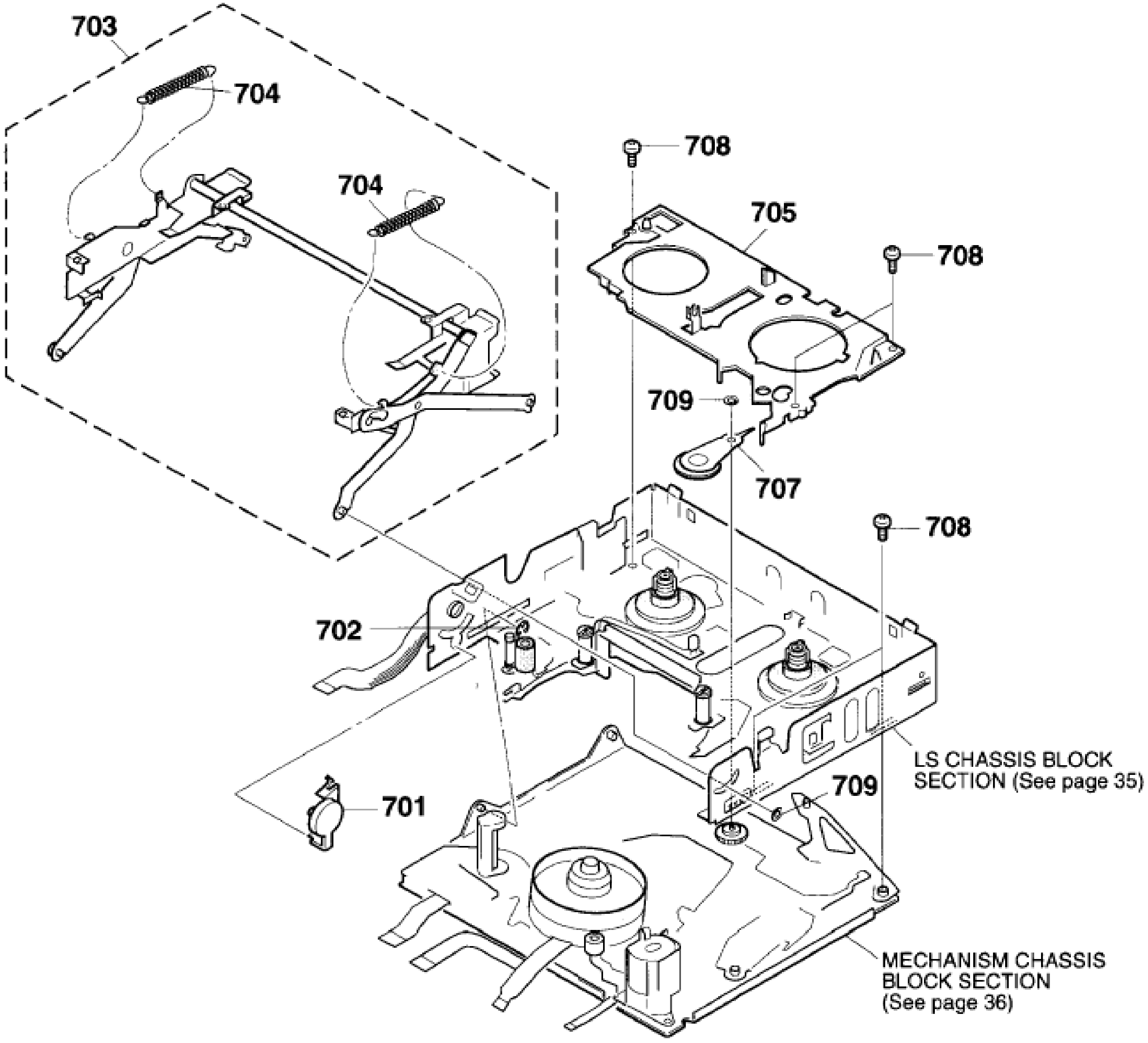


Fig. 35

5-1. Cassette Compartment Block Section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LS CHASSIS BLOCK SECTION (See page 35)
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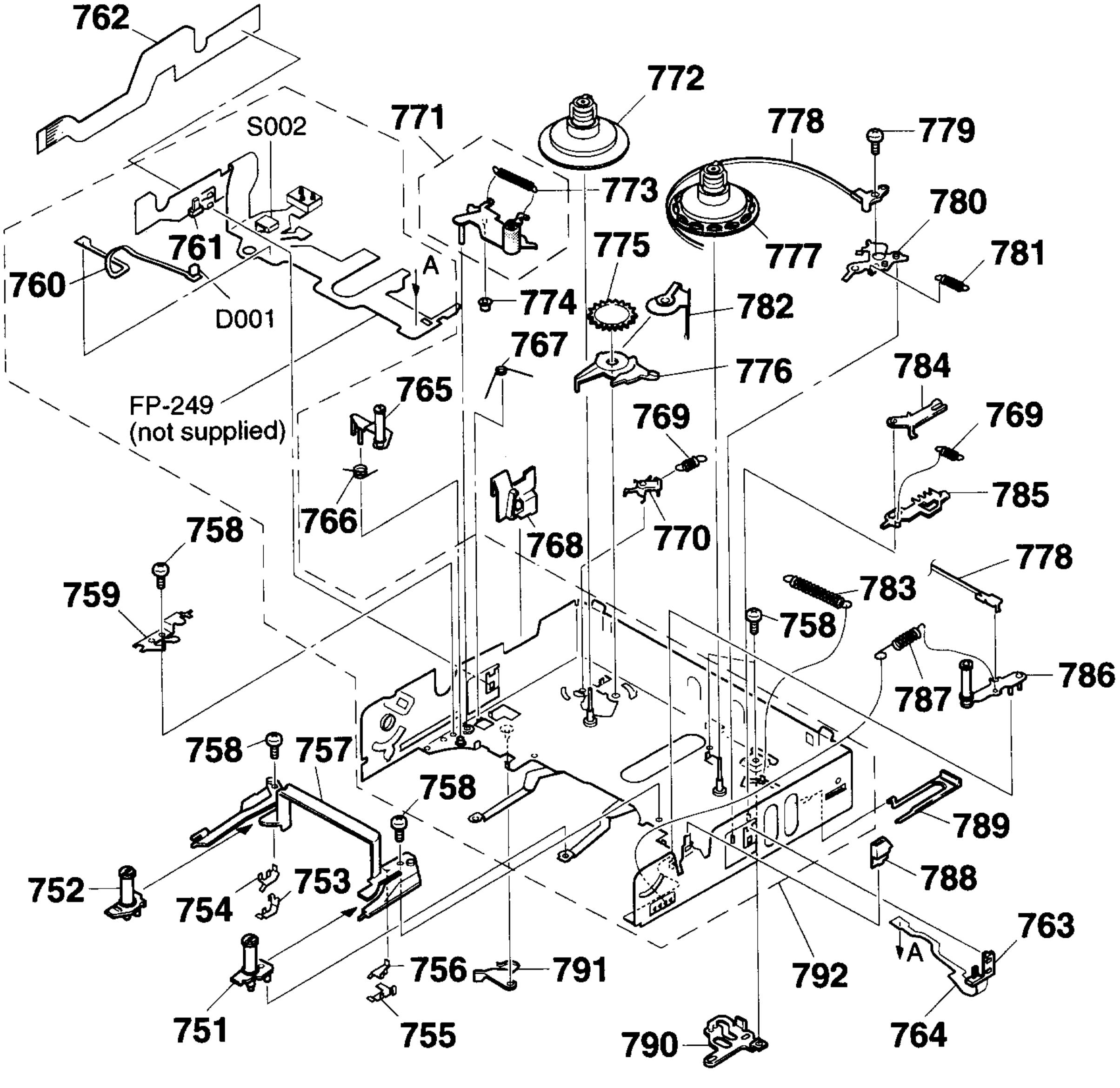
MECHANISM CHASSIS BLOCK SECTION (See page 36)

5-2. LS Chassis Block Section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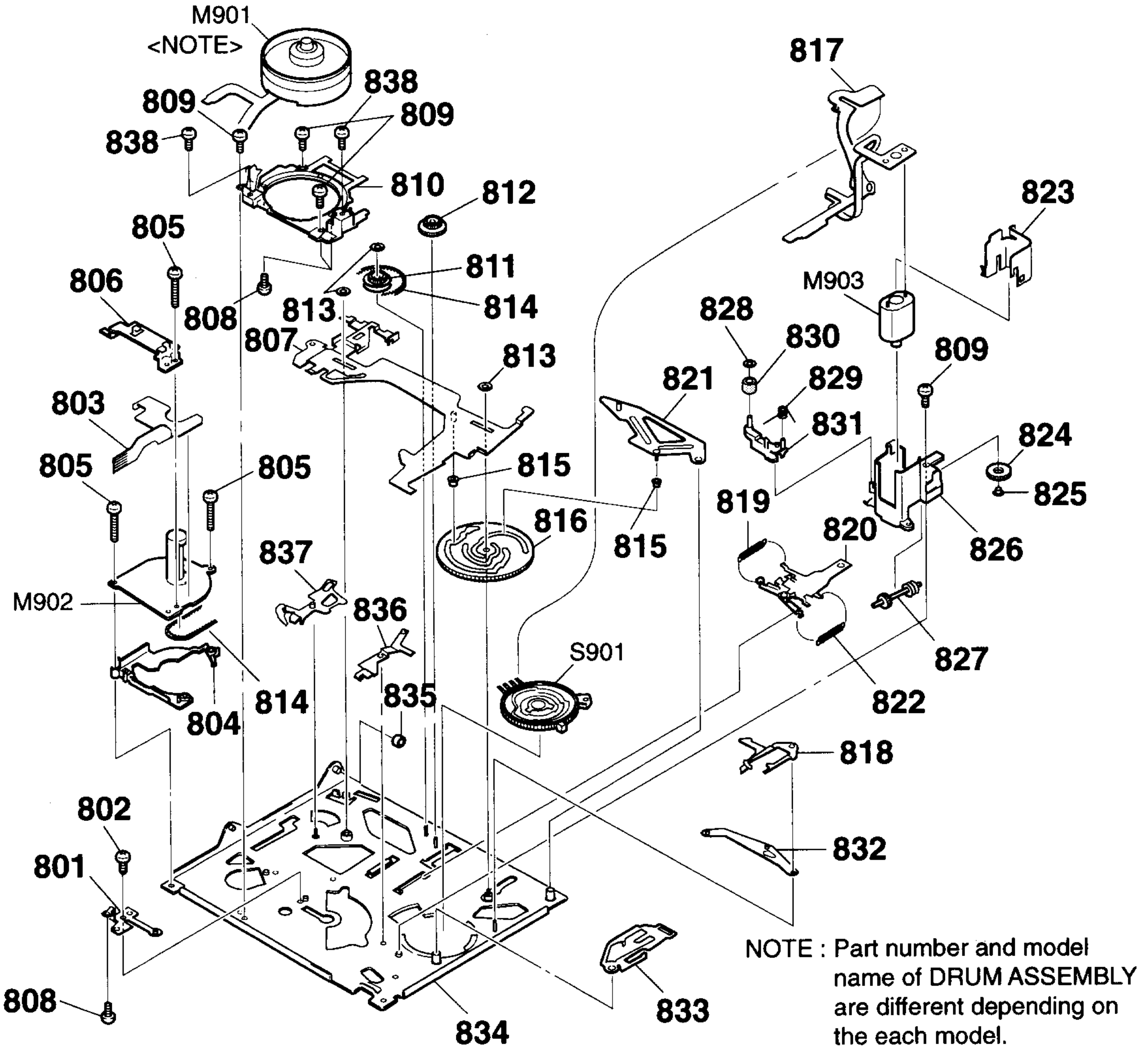
5-3. Mechanism Chassis Block Section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NOTE : Part number and model name of DRUM ASSEMBLY are different depending on the each model.